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JANUARY NUMBER, 1860.

NORTH CAROLINA PLANTER.

A MONTHLY

...sJMcDowell

Southern Agricultural Journal:

DEVOTED TO

THE IMPROVEMENT OF SOUTHERN FARMING, HORTICULTURE,
FLORICULTURE, AND THE DOMESTIC AND MECHANIC ARTS.

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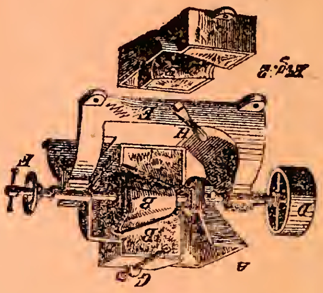

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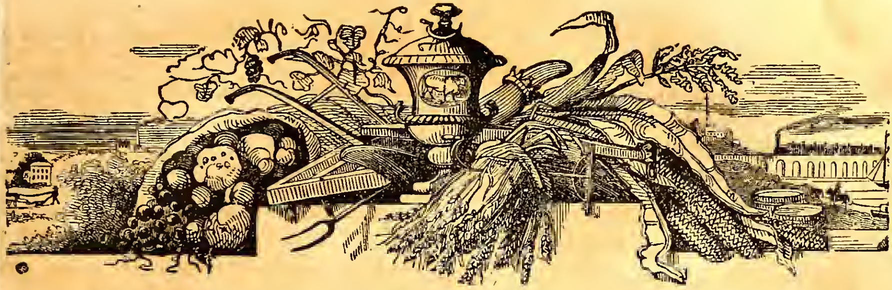

THE NORTH-CAROLINA PLANTER.

Devoted to Agriculture, Horticulture, and the Mechanic Arts.

VOL. 3. RALEIGH, N. C., JANUARY, 1860. NO. 1.

Mechanical Treatment of Soils.

BY PROF. CAMPBELL.

In reducing soils to their proper mechanical condition, three points must be kept distinctly in view: *They must be sufficiently pulverized to allow the roots of plants to spread and grow freely*; *They must permit a free circulation of air*; *The water which falls upon them must be readily absorbed, and have, at the same time, such free circulation, that any surplus moisture will pass off, without becoming stagnant, and without washing away the surface.*

To accomplish these objects, several methods may be pursued, one or all of which may be employed, as the condition of the land, or other circumstances seem to require. Those means best adapted to the farming operations of our own country will be described.

Mixing soils may be resorted to, where those of widely-different classes are sufficiently near each other to admit of transportation. For example, the best and most durable remedy for a stiff clay is the application of sand; while, on the other hand, the best remedy for a very loose, sandy soil, is the application of clay. If a farmer has both kinds of soil on contiguous portions of his land, he may often find it profitable to haul sand upon his stiff clays, and, for each load of sand, bring back a load of clay to be applied to the loose, sandy surface. This method is extensively and most successfully employed in Holland.—Clay soils may also be greatly benefited by being mixed with peaty soils, or, still better, by applying pure peat. So, those of peaty character, being often too porous, may be improved with clay, or clay and sand together.

Plowing is the most common, and most economical means of giving a soil its proper mechanical condition. All past experience proves that, without the plow, or its equivalent, successful agriculture is impossible; while the history of the world shows that nations have generally been prosperous (other things being equal,) just in proportion to the skillful use they have made of this most important of all instruments. If two men, with equal force and capital, are placed upon contiguous farms of equal size and fertility, they will *prosper* very much as they *plow*. The one who scratches the surface to the depth of only three or four inches, will soon find his farm and himself growing poor; while the one who is not satisfied with breaking and cultivating less than twelve inches in depth of his land, will, most probably, soon find it necessary to "pull down his barns and build greater."

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Repeated plowing during the growth of many crops, not only cleans the land, by destroying weeds and grass, but also serves another most important purpose not to be overlooked, even if the land is already clean: that is, it keeps the soil in a proper condition for the growing roots, and for the free circulation of air and moisture. These advantages are seen every season, where corn, tobacco, and cotton crops are properly cultivated.

Deep plowing is absolutely necessary on almost every farm, in order to get the highest profit from the soil. The reasons for this may be rendered plain enough for any mind, in a few sentences. The space in depth, to which the roots of crops penetrate, and from which they derive nourishment, is limited chiefly by the extent to which the plow has run. Beneath that point, especially in clay soils, the roots make but little progress. The unbroken subsoil, when composed of clay, is not easily penetrated by rain. Hence, after the plowed mass has become saturated, the surplus water escapes from the surface, frequently carrying off valuable portions of the fertility, and leaving unsightly gullies behind it.—Deep plowing tends *to prevent washing.*—A deep-broken soil is a sort of *store-house for moisture*, holding a portion always in reserve for periods of drought. When the sun, the air, and the growing crop have taken up the surface moisture, some of the roots are still deep down in the earth, where the supply is abundant. Then, again, this moisture from below constantly rises toward the top during drought, by the force of capillary attraction, thus keeping up the supply to those roots nearer the surface. Besides this, it brings with it some elements of fertility in solution, and as the evaporation at the surface goes on, these are left to aid in enriching the surface-soil.—Drought may thus improve land which has been properly plowed.

Sub-soiling.—The sub-soil plow is designed to follow the ordinary or surface-plow, in the furrow left by the latter. By this means the bottom of the furrow is broken and pulverized, without being turned up. The surface-plow then throws its next furrow upon this loosened portion of the sub-soil; and, again, the sub-soil plow following, breaks another portion beneath; and so the process is continued till the whole field has its surface stirred to a depth which cannot ordinarily be reached by any one plow operating alone.

One of the simplest and best sub-soil plows is constructed upon the following plan: It has a strong, sharp coulter, extending about fiften inches below the beam, having a share, or wing, on one side of it, about two-thirds as wide as the share of the surface-plow. The hind part of this share-wing should be elevated about three inches, so as simply to raise the clay, and let it fall back in a pulverized condition behind the coulter. The bar forming the point, should extend backward from the heel of the coulter four or five inches, to give steadiness to the plow, and enable the plow-man to regulate its depth.

If the plow is to be worked by two horses, which it generally requires in a stiff soil, one of the horses should walk in the furrow, and the coulter must then run with its share directly behind him. In order to throw the coulter thus more nearly in the track of the furrow-horse, than of the one on the unbroken land, the beam may be crooked. It can be make by any ordinary plow-maker, at a cost of three or four dollars. A streight beam will do, if the point of the coulter is inclined towards the furrow. But the handles are then throw too far out of the line of draught.

Benefits.—The benefits of sub-soilin are similar to those of deep plowing, al ready given. It opens up a new source o fertility, for the sub-soil always contain many of the substances demanded b the growing crop. It gives a deeper spac for the circulation and retention of air an moisture, and thus serves as an antidote t drought. Again, if the soil is level, an of such a character as to retain too muc of the water which falls on it, and thus b comes swampy, the broken sub-soil lets pass off more freely from the surface-so and the sub-soiling thus becomes akin draining. But, on horrizontal lands, case there is still a stratum of impervio clay beneath the broken sub-soil, there w be no outlet for the surplus water, whi will then be confined in the level field, as in a shallow basin. In such a case, draining must precede sub-soil plowing, else the latter will be of no avail. If land is level, then subsoiling will be of little service to it, unless it be either natural or artificially drained.

But one peculiar advantage which subsoiling has over ordinary deep plowing, is that it gives a deeply pulverized mass, without exposing upon the surface that portion which is often unfit for such a purpose. If, for example, the sub-soil is a tenacious clay, which would readily form a hard crust on the surface, it had best not be turned up; or if it is of a lighter color than the surface soil, it would not absorb heat so freely, and would hence be, in that respect, injurious.

Sub-soiling need not be resorted to in all cases. In very deep loamy and sandy soils, it is sometimes better to run two ordinary plows, the one after the other, in the same furrow—the second being set deeper than the first. In this way the surface and subsoils are inverted, to some extent, or, at least, completely mingled; and where the surface has been exhausted by long continued tillage, its place is thus supplied by fresh soil. This is called "*trench plowing*."

The sub-soil plow serves a valuable purpose, when run through meadows and grass lands which have become too compact.—The soil beneath the sod is loosened to a great depth, without the sod being seriously broken. This plow may also be used for loosening the earth beneath the roots of corn, or cotton, before the plant has attained any considerable size.

The Harrow and Cultivator are important auxiliaries to the plow, in reducing the soil to a more completely pulverized condition; in mixing fertilizers more entirely with it; in giving a smooth surface; and in covering the seeds of some crops. The cultivator is especially useful in stirring the soil between corn rows, when the roots have become too much extended to allow very deep tillage; and in covering wheat, when sown broadcast.

The Roller is an important instrument on many soils. Where clods are too hard for the harrow to reduce, the roller affords the best means of crushing them. When very light soils are cultivated in wheat or grass, the roller is frequently wanted to render the surface sufficiently compact.

Chemical Treatment of the Soil.

BY PROF. CAMPBELL.

A soil may receive all the attention possible, in the way of plowing, draining, &c., and still not be productive. It may yet lack some of the proper chemical elements necessary to supply the wants of the growing crop. The mineral ingredients taken from the soil by different crops are nearly identical in *kind*, but vary considerably in the *proportions* in which they enter into the constitution of the ashes of different plants, or different parts of the same plant.

That a soil may be fertile for a particular crop, several chemical properties are essential. It must contain a sufficient excess of the mineral elements required by the crop, to allow the roots to find an abundant supply within the limited spaces which can be reached by the rootlets. Of course, this would require in the whole mass of the soil, much more of each element than could be removed by a single crop. *The plant-food must be in the proper chemical and physical condition to be taken up and appropriated by the plants.* Silica, in the condition of *sand*, cannot act as a fertilizer, because of its insolubility; but, in such combinations as render it soluble, it is one of the most important elements of nutriment for plants. *The soil must be free from an injurious excess of any of the elements of fertility.* Too much magnesia, or even too much carbonate of lime, may be injurious; as in the chalk lands of England, which are among the least productive of that country. The acids in humus are useful to a certain extent, but in large excess they become injurious.—*Organic matter is essential to a high degree of fertility.* In a soil having the proper *mineral* elements alone, a plant may come to maturity, and bear seed, obtaining the necessary organic food from the air, through its leaves and roots; but a *full crop* cannot be expected in such a case. The soil, to be fertile, must contain both humus and ammonia.

The analysis of a soil is not *always* sufficient to decide the question whether it is fertile or not. The per cent of some ingredients taken from the land, by even several successive crops, is so extremely small, that the most delicate chemical tests would barely indicate *traces* of their presence.—Far less than one per cent of phosphoric acid, or chlorine, or potassa, or lime, would be sufficient for all the crops that could be cultivated on a soil for many successive years. Even *one-hundredth* of one per cent is more than sufficient to supply many crops. But chemical analysis can detect far less than this, and yet not be able to say *positively* whether the soil is fertile or not for a particular crop; for the substance may be present in sufficient quantity, but not in the proper *condition* to be used by the plant. Chemistry is not able, in every case, to say in what combination elements exist in soils, where the proportions are extremely small; much less has it been able to tell us in what combinations the plant takes up its mineral food. Still, this valuable science has thrown much light upon the relation subsisting between the soil and the crop.

Analysis tells us, in the first place, that productive soils always contain the same mineral matter found in the ashes of the plants which grow upon them. In the second place, it tells us which elements of fertility exist in very minute quantities, and which in abundance, and then points to the sources from which we may supply those in which the soil is deficient; but it *cannot always predict* the influence which a particular fertilizer is to have upon the crop to which it is applied. It frequently tells us, too, when an injurious excess of any substance is present, and what applications are to be made, to counteract the influence of such substance.

We shall place side by side, in the following table, the analyses of three soils, differing in quality. The *first* is fertile for all ordinary crops, *without manure.*—The reason of this will be seen in the presence of an abundance of those substances found in the ashes of plants. The *second* is a soil which produces well, with the application of *gypsum* and *ashes.* The deficiencies in the table are thus filled up.—The *third* is a poor soil, requiring much manuring. Observe in how many ingredients it is deficient.

In 100 lbs. of soil.	Fertile.	Fertile with ashes and gypsum.	Infertile.
Organic mater	10.00	5.60	6.00
Potassa	0.40	0.01	Deficient.
Soda	0.20	0.20	Deficient.
Lime	5.90	1.80	0.50
Magnesia	0.80	0.70	0.80
Oxide of iron	2.10	4.10	8.00
Oxide of Manganese	0.10	0.30	1.00
Alumina	10.70	25.60	25.30
Phosphoric acid	0.40	0.20	Deficient.
Sulphuric acid	0.30	Deficient.	Deficient.
Carbonic acid	5.20	1.40	0.50
Silica	63.90	60.00	58.00
Chlorine	0.02	0.07	Deficient.

It will be seen, from the first column of the above table, that even a fertile soil may have but a small percentage of several ingredients which are absolutely necessary in the production of every crop. No crop, for example, can be produced without potassa and phosphoric acid; and yet these form a very small proportion of any ordinary soil. A single crop takes away but little of any one element of fertility; but still, repeated cultivation of similar crops for many years, must greatly diminish the supply of those mineral elements found in the ashes of such crops.

Every bushel of wheat, every hogshead of tobacco, every ton of hay, and every bale of cotton sold, carries with it a portion of potassa, lime, phosphoric acid, and other mineral matter. Every fatted ox carries with him to market a good many pounds of phosphate of lime, which came from the soil on which his food was produced.

If every article of produce sent to market carries with it a portion of the mineral fertility of the farm, this must in some way be restored, else the land must become poor. Some soils may contain all the mineral elements of fertility in such abundance, that even centuries of cultivation would not exhaust them entirely; but such is not generally the case. Some of the fields in the central and northern parts of Kentucky, have been cultivated for more than half a century without manure, and are still fertile. Some of the James river bottoms, in Virginia, have been cultivated for more than a century without manure, and still produce well. But we must not draw general conclusions from a few extraordinary cases.—The *general* experience of the world is, *that land becomes exhausted by long tillage without manure.*

The *organic*, as well as the inorganic, matter is exhausted by *improper* cultivation. The *humus* of the soil is decomposed, and gradually disappears; and unless fresh portions are supplied from time to time, a *deficiency* must be the result. The *ammonia* is still more rapidly exhausted. The natural supply of ammonia in soils is not generally abundant, while its volatility and chemical activity, cause it to be constantly escaping, or undergoing changes of form and combination. Hence, we see the necessity for artificial fertilizers.

From the Southern Field & Fireside.

An Agricultural Sketch.

Dr. Lee—*Dear Sir:*—I read with pleasure the prize essay on Agricultural Chemistry in a late number of your paper. The author, a planter from St. Simond's Island, has done himself credit, as well as benefitted the planting interests of the country, should the farmers see fit to put into practice the plans therein suggested. The deep ditching to draw off the superfluous water, the deep plowing and harrowing to pulverize the soil and turn it under, and the rotation or succession of crops, are subjects worthy the most serious consideration of the planter. The formation and saving of manure, and the best kind adapted to the soil, is also a matter of study. I recollect it was but a few years ago that very many farmers rejected anything like book farming; they preferred the old beaten track of their forefathers, and what is the consequence? Old fields, old fields, to almost any extent, particularly in the Carolinas and Georgia; homesteads abandoned—the former occupants having gone West, in search of fresh soil. How is it that in England the land is cultivated from generation to generation, and the last in possession finds the soil as fertile, or even more so, than their ancestors who occupied the same spot? I think the problem easily solved. The agriculturists of England, as well as Scotland, understand *Agricultural chemistry* better than we do, as farmers; and so understanding, work their soil according to the laws of nature—*we the contrary.* A new era, however is now dawning on us. The value of this science is becoming more doveloped, and when fully so, old fields in the old States will be as scarce as they are now in England.

In tracing back the origin of agriculture, and the progress made since, I find it somewhat interesting; and as some of your readers may not have read it, I will give one or two short items. Loudon states that the origin of agriculture may be traced to remote antiquity, and was doubtless coeval with that of fixed property, in the primeval state of society; the sole riches of the husbandman consisted in flocks and herds, which were kept in a state of movement from one point to another in search of pasturage and water; but as population increased, mankind adopted a fixed abode. This could only be done by bestowing on the site a certain degree of labor and care, which became, as it were, the *price paid* for constituting it private property. At this point in the progress of civilization, agriculture may be said to have commenced. Cooley writes: "In tracing the progress of this art in civilized countries, we have only to follow the chronology of general history, as the Greeks and Romans appear to have attained nearly equal excellence in the practice of agriculture."

Till within the present century, very little difference existed between the most approved climate analagous to that of Italy, and the agriculture of the Romans. The chief superiority of the modern consists in their machinery, and in their knowledge of the *science* of the art, the last being of very recent date, and by no means general among farmers.

By science, improved breeds of both plants and animals have been originated, and by modern machinery a more perfect tillage has been produced.

The history of British agriculture begins with the Roman conquests. Julius Cæsar. found the inhabitants in a state of semi barbarism; but Agricola left them in p session of all the arts of civilization then known.

Agriculture declined with the invasion of the Saxons; but was preserved through the dark ages, after the establishment of Christianity.

Agriculture revived in the reign of Henry VIII., and in that of Elizabeth, during the long peace which then prevailed; and it afterwards declined during the civil wars. It again revived during the reigns of William and Mary, Queen Anne, and George I., in consequence of the introduction of Flemish husbandry, which introduced the culture of turnips and clover.

A still greater stimulus to the art was given during the reign of George III., by the introduction of plows drawn by two horses, instead of four or six, the drill system, and its application to the culture of turnips and potatoes, and by the improvements made in the breeding and rearing of live stock, by Bakewell and Culley. Early in the present century, the threshing machine was an important addition to agricultural machinery. The reaping machine, the frequent drain system, and the sub-soil plow, are of recent improvements

Now, taking these statements into consideration, and the present improvements in agriculture, with our soil and climate of Georgia, we should endeavor by proper means to develope her resources, by the study of all the fundamental principles of agriculture, and this should be done by the whole South generally, and will, at no remote day, for I think it has already commenced.

The principles of agriculture are derived from a knowledge of the nature of plants and animals, of soils and manures, climate and seasons.

Plants are organized beings, which take up their food by means of roots from the interior of the soil, and by their leaves from the atmosphere. The nature of these elementary materials being understood, even though imperfectly, certain improvements can be effected in them by art.—The fertilization of soils is suggested partly by chemical analysis, practical experience, and geological observation. Gravel, sand, clay, silica, chalk, and oxide of iron, are the principal mineral constituents of soils.

Sand and lime are the proper additions to clayey soils; and clay, gypsum or marl, to sandy and gravelly ones, and in addition to these 'decomposed vegetable and animal matter.' The State of Georgia has in her soils all these, with the exception of gypsum.

In the application of manures, reference must be always had to the intended crop; as certain plants are found to require nourishment of different description to what is fitted for others, and will grow freely, or not at all, when this is absent. Wheat, for example, will not produce full grains on soil that is destitute of lime.

Draining, or the operation of freeing a soil from superfluous water, is of equal, or perhaps more, importance than supplying it with manure, because, though without manure plants will not grow with great luxuriance and vigor, yet, with too much water, they will not grow at all, or will become silky. It becomes, therefore, of the first importance to have the land well drained by deep drainings, and shallow running into the deep, if a number of ditches are required. Rotation of crops is absolutely necessary for the successful and economical cultivation of the soil. Crops may be divided into exhausting crops—restoring crops—and cleaning crops.

The most exhausting crops are usually considered to be those of corn; but all those that are allowed to ripen their seed, and which are carried off the land, are also exhausting, but in different degrees; even clover and grass, cut green, are considered as exhousting, but in a less degree than those that are allowed to ripen.

Restoring crops are such as are allowed to decay upon the land, or turned under, or are consumed upon it by domestic animals. A cleaning crop is one that has to be weeded (corn or cotton.) In rotation of crops, the plants should be altogether dissimilar, or not allied, so that the different substances that enter into their combination would not be exhausted.

I will close this article by an extract on manures from some of the best authors, so that a better understanding may be had as to the fertilizing properties of the soil.—

The food of vegetables as far as their organic structure is concerned, consists entirely of inorganic compounds. No organized body can serve for the nutrition of vegetables, until it has been, by the process of decay, resolved into certain inorganic substances; these are carbonic acid, water, and ammonia, which are well known to be the products of putrefaction.

But when these are supplied to vegetables, their growth will not proceed, unless certain mineral substances are likewise furnished in qualities, either by the soil or the water used to moisten it. Almost every plant, when burned, leaves ashes, which commonly contain silica, potash, and phosphate of lime; often also, magnesia, soda, sulphates, and oxide of iron. These mineral bodies appear to be essential to the existence of the vegetable tissues, so that plants will not grow in soils destitute of them, however abundantly supplied with carbonic acid, ammonia and water. According to Leibig, the carbon of plants is wholly derived from carbonic acid, which is either absorbed from the atmosphere and rain water, by the leaves, or from the moisture and air in the soil, by the roots.—Carbon is retained and assimilated with the body of the plant, while its oxygen is given out in the gaseous form, this decomposition being always effected under the action of light, at ordinary temperatures. The hydrogen and oxygen of vegetables, which, when combined with carbon, constitutes the ligneous, starchy, gummy, saccharine, oily, and resinous matters of plants, are derived from water chiefly absorbed by the roots from the soil. The nitrogen of vegetables is derived chiefly, if not exclusively, from ammonia, which is supplied to them in rain and in manures, and which remains in the soil till absorbed by the roots. Ordinary manures may be regarded more valuable according to the quantity of azotized matter which they contain, and also in proportion as the decomposition of quaternary substances acts gradually, and agrees with the progress of the vegetation.

Thus it is the azote in combination, contained in manures, which is especially useful, and the proportion of this, when ascertained, indicates the richness of such substances as fertilizing agents.

In reference to the mineral constituents of soils, it appears that a soil is fertile or barren for any given plant, according as it contains those mineral substances that enter into its composition. "Thus, the ash of wheat-straw contains much silica and potash, while the ash of the seed contains phosphate of lime and magnesia, hence, if a soil be deficient in any one of these, it will not yield wheat. On the other hand, a good crop of wheat will exhaust the soil of these substances, and it will not yield a second crop till they have been restored, either by manure, or by the gradual action of the weather in disinsegrating the subsoil. Hence, the benefit derived from resting the field, and from the rotation of crops.

"When, by an extraordinary supply of any one mineral ingredient, or of ammonia, a large crop has been obtained, it is not to be expected that a repetition of the same individual manure next year will produce the same effect. It must be remembered, that the usual crop has exhausted the soil, probably of all the other mineral ingredients, and that they also must be restored before a crop can be obtained.

"The salt most essential to the growth of the potatoe is the double phosphate of ammonia and magnesia, that chiefly required for hay is phosphate of lime; while for almost all plants potash and ammonia are highly beneficial.

From the principles above mentioned, we may deduce a few valuable conclusions in regard to the chemistry of agriculture. First, by examining the ashes of a thriving plant, we discover the mineral ingredients which must exist in a soil to render it fertile for that plant. Secondly, by examining a soil, we can say at once whether it is fertile in regard to any plant, the ashes of which has been examined. Thirdly, when we know the defects of a soil, the deficient matters may be easily obtained and added to it, unmixed with such as are not required. Fourthly, the straw, leaves, &c., of any plant must be the best manure for that plant, since every vegetable extracts from the soil such matter alone as is essential to it. This important principle has been amply verified by the success attending the use of wheat straw, or its ashes, as manure for wheat, and the clippings of the vine as a manure for the vineyard. Fifthly, in the rotation of crops, those should be made to follow which require different materials; or a crop which extracts little or no mineral matter, such as peas, should come after one which exhausts the soil of its phosphates and potash.

Of the chemical manures so much used, bone dust supplies the phosphates which have been extracted by successive crops of grass and corn; the whole of the bones of cattle fed on these crops having been derived from the soil, its gelatin also yields ammonia by putrefaction. Guano acts as a source of ammonia, containing much oxalate and urate of ammonia, with some phosphates, an experiment was made this year with guano, and Rhodes' super-phosphate of lime, the amount of two dollars and fifty cents of each article used in planting cotton; the latter being the cheapest article went further in the rows. The result was that the latter manure in producing one-third more, and plants flourished best with the latter; the same farmer states that he plants the same rows every year, leaving between the two rows so poor as to enable him to keep down the grass. In planting turnips he turns the soil with two horses to the turning plow; this done he puts one horse to a scooter and goes through the same furrow which does not turn out but softens the bottom clay; he then goes over the field with a harrow, plows some five furrows to the harrow; then plants his seed in September, after which he hitches a mule to a large bush or brush from the swingle-tree, and brushes the field over. This answers in new or fresh soil; in old or cultivated fields, he plants in drills to enable him to cultivate and keep down the grass.

Respectfully, C. P.

* * *

The total internal surface of a large locomotive boiler, including the heating surface, is about 1250 square feet, the total pressure on which, at 120 lbs. per square inch, is above 10,000 tons.

From the Southern Homestead.

The Philosophy of Tillage.

In developing his philosophy of tillage, at page 236, Tull reaches the following conclusions:—"From all that has been said, these may be laid down as maxims, viz: that the same quality of tillage will produce the same quantity of food in the same land; and that the same quantity of food will maintain the same quantity of vegetables."

The first named maxim is unquestionably sound and true, provided the conditions of the earth tilled are alike in all respects when the cultivation takes place. But the same quantity of tillage, when the ground is too wet to plow, will not produce the same amount of plant food that would be obtained if the earth was dry enough to break up into fine pulverized particles. Again, it is known that the longer a field is tilled without rest or manure, the more adhesive, compact, and dead the clay and other earthly particles become; so that any given quantity of cultivation produces a smaller quantity of plant food, and less friability and comminution of soil as the stirred earth approaches exhaustion, and demands renovation. On the other hand, the length of time which some fields, not flooded nor irrigated by a river or other stream, will remain fertile without manure, and by wise cultivation alone, is truly remarkable. Tull's long residence in France and Italy extended his observation of the results of cultivation alone in maintaining perennial fruitfulness. On the page above cited, he says: "A vineyard, if not tilled, will soon decay, even in rich ground, as may be seen in those in France, lying intermingled as our lands do, in common fields. Those lands of vines which, by reason of some law-suit depending abou them, lie a year or two untilled, produc no grapes, send out no shoots hardly; the leaves look yellow and seem dead, in comparison with those on each side of them, which, being tilled, are full fruit, and send out a hundred times more wood, and their leaves are large and flourishing; and continue *to do so for ages, if the plow or hoe do not neglect them.*"

The experience of every man of years and close observation in vine culture will corroborate the remarks of this acute student of nature. The earth thoroughly stirred by the implements of tillage, yields, by the chemical decomposition of its own compounds, potash, salts of lime, and other minerals required to form the wood and fruit of the vine. All the leaves and trimmings of the plants produced every year being added to the soil, to increase its mould, and the earthly elements which would form ashes in case these leaves and trimmings were burnt, its fertility in many vineyards need no other fertilizers for centuries, if ever. What really is removed from the soil in fruit is fully restored from the atmosphere and the deep sub-soil, in a way which every cultivator ought to understand. Very pertinently does Tull call attention to the fact, that no change of crop is needed in vine culture for ages, on the same ground. He says: "But what in the vineyards proves this thesis most fully is, that where they constantly till the low vines with the plow, which is almost the same with the hoe-plow, the stems are planted about four feet asunder, chequer wise; so that they plow them *four ways.* When any of these plants happen to die, new ones are immediately planted in their room, exactly in the points or angles where the others have rotted; else, if planted out of these angles, they would stand in the way of the plow. These young vines, I say, in the very graves, as it were, of their predecessors, grow, thrive, and prosper well, the soil being thus constantly tilled. If a plum tree, or any other plant, had such tillage, it might as well succeed one of its own species, as these vines do."

The above remarks, made about 140 years ago, bring us fairly to the point: how does the tillage ever perpetuate fruitfulness without manure, for centuries in succession?

The supply of water and gas from the evermoving atmosphere will not alone meet all the requirements of grape vines and their annual fruits; nor will any given amount of clay, sand and vegetable mould yield an ever enduring, and therefore, an unlimited quantity of earthly salts, like potash, lime, &c."

In the first place, we would state the important fact, that all soil, in all situations, will *not* yield annual crops of grapes for removal, no more than annual crops of wheat to be sent to distant markets, without manure of some kind to replenish the soil. The loss of fertility results often less from the deficiency of bone earth, potash, soda, magnesia, chloride and sulphuric acid, in the soil stirred by the plow, than from the *imperviousness* of the subsoil, which prevents the ascent of water during the hot summer months about the roots of vines and other plants, to supply them with the earthly salts needed for their healthy growth. Sub-soil plowing, double spading and trenching, so useful in vine culture, break the under crust, and operate at once to facilitate the ascent of plant food from below upward, and to augment the total capacity of the ground both above and below the roots of plants, to hold the fertilizing gasses, whether from the atmosphere or decaying vegetation, and all aqueous and mineral aliment required to bring them to full maturity.—Deep and thorough tillage enlarges the store house of plant food, and gives vastly more pulverized earth in which the myriads of tender rootlets are able to develop themselves for the sustenance of a common parent.

Good culture renders the ground that was before compact, and much like a solid rock, as bibulous as growing plants themselves; so that a soil, recently so hard as to be nearly closed to all air and water, becomes, by deep and perfect tillage, capable of drawing from the earth below and the air above, into the very mouths of hungry yet stationary plants, every element demanded by nature to yield the industrious husbandman a satisfactory harvest. Nature loves the earnest and thoughtful cultivator who does his work in a masterly manner—crushing every lump of clay, and pulverising the ground to bring out all its hidden wealth, as if it were filled with particles of fine gold.

Shallow plowing gives to the soil only a small capacity to hold water in rainy weather; and when this capacity is full and running over, and still additional rains fall, sad indeed is the washing done to many a plowed field. The loose soil was like a bucket full of water which could hold no more. Upon this more rain came in torrents, and started a flood where the ground was a little descending, which carried the light mould loam and deeper soil, as far as loosened by the plow, into the branch or river below. Horizontal plowing, and that of the deepest kind, is needed to prevent injuries of this character.—In sowing small grains and grass seeds, we have found a roller of much service, not only to compress the earth to the seed, and enable it to take a firmer root, but to prevent surface water from collecting in rills, as it is too apt to do, where the plow or harrow was last used in cultivation. Too much pains to avoid the washing of tilled land can hardly be taken in the South.—It is better to rest more surface, and do right all that is cultivated at all, than to scratch over a larger area to the serious damage of every half tilled field. Put a fair portion of the plantation down to the best sort of grasses, for permanent pastures and meadows. These will save much labor in pulling fodder, will support mules, horses, cattle, sheep, goats and hogs, cheaper than can be done in any other way.—Perfect tillage is an art which but few understand. It must be practiced every year, deeply and thoroughly, to bring the soil into the best physical and chemical condition. Sub-soiling may injure one or more crops, while in the end it will deepen the rich earth full 100 per cent. A deep, rich soil can never be made in one or two years, from a thin and poor one; but time and skill will attain the great object sought.

The Methods for Keeping Cider.

There are a variety of methods resorted to for the purpose of arresting fermentation, and keeping the cider sweet, such as putting a handful of well powdered clay into each barrel, or two or three pounds of newly burned charcoal, reduced to a powder, are added to each barrel of cider as it comes from the press. This makes it as black as ink at first, but it finally becomes remarkably clear. Others add a little mustard seed.—Another method is to place a few gallons of cider in the barrel, and then a rag dipped in brimstone is attached to a long tapering bung; this is ignited and the bung loosely inserted. After the brimstone is consumed, the barrel is rolled until the cider has absorbed the sulphurous acid gas. The barrel is then filled up with cider. The sulphurous acid gas acting on the albuminous matter in the cider, arrests fermentation. The only objection to this method is, that if too much gas is absorbed, it may prove injurious.

A much better method, and one which obviates this difficulty, is to have the sulphurous acid gas absorbed by lime. In other words, to put a little sulphite of lime (not sulphate of lime, or gypsum,) into the barrel with the cider. When the cider begins to ferment, the acetic acid formed, unites with the lime and liberates sulphuric acid gas, and this immediately checks fermentation. The sulphite is nearly insoluble in water, and lies inert and harmless at the bottom of the barrel till it is needed. This is a very simple and effectual method of arresting fermentation at any stage desired. Of course, in all cases, the cider should be kept as cool as possible, without allowing it to freeze, and the more effectually the air can be excluded, the better.

For the N. C. Planter.

Small Farmers.

Mr. Editor:—No observing man who has traveled much over the country, but has remarked, that there are a great many small farmers. It is very natural for us to inquire, why it is that so many men who are engaged in agricultural pursuits, make so little progress in farming, or who exhibit so many and such striking evidences that they are not farming at all, but "*only breathing*." My motive for writing this communication is, to enumerate and assign some of the reasons why many of these small farmers do not succeed in their occupation.

A. is a small farmer, because he is too lazy to perform that amount of either mental or manual labor necessary to enable him to succeed in farming. He is very hard to please as to the weather. He is afraid of the cold, or the heat, or of rain, and is often sitting in the house when he ought to be out on his farm hard at work.

B. is a small farmer, because he manages badly, and is very careless also, and is rather extravagant, to be nothing but a small farmer. Although his income is very small, he must have his dram and tobacco, and leaves his farm rather often to attend Fairs when he has nothing to exhibit, and to attend Courts, and other public places where he has no business.

C. is a small farmer because of his gross ignorance of the business of farming. He is very much opposed to what he calls Book-farming, and just does—what little he does, just as his Daddy did. He plans and works to a great disadvantage from sheer ignorance. If an intelligent, successful farmer tells him he is behind the "times," he will at once tell you that all Book-farming is a humbug, and that no body but the big farmers can afford to be humbugged.

D. is a small farmer, because, he is too penurious and stingy to provide suitable implements to farm with. He never seems to reflect, that while he is saving a *penny*, he is losing perhaps a *dollar*. I knew one of these kind of farmers, whose black smith' sbill at the end of the year was only 37½ cents, but he bought corn the next year.

E. however may be called a small farmer in regard to the size of his farm, but in a very important sense, he is a capital farmer. His farm is small, but it is in a high state of cultivation. The land is fertile, and well cultivated, his fences are all in good repair—his buildings exhibit taste, and arrangement, and his garden is rich, and well enclosed—and every thing, in short, exhibits the most striking proofs of neatness, taste, industry, and skillful farming. Such farmers are generally at their posts, attending to their own affairs, and letting other people's alone. You never see them with an empty bag running over the neighborhood after corn, when they ought to be at work.

F. although he owns a large farm, and works several hands, may be regarded as a small farmer, considering his means. He plants largely, but his land is generally sterile and poor, and he has never spent a dollar in his life for any agricultural publication, and never makes any improvements on his farm. He knows of no better way than to wear out his land as fast as he can, and clear more, intending when he can live no longer where he is, to sell out (or rather give away the old worn out place) and move away, and start perhaps in the woods the second time, *now when he is old*. What consummate folly! I doubt very much whether such men can justly claim to be, either good christians, or good patriots. We have no right to abuse the gifts of Nature. I believe we commit a moral wrong when we suffer even an acre of land to wash into gullies, when a little labor would prevent it. R.

An Extract.

After the harvest has been gathered, then comes the sale. Prices are now to be regulated according to supply and demand. It is the business of the merchant to know what the demand is, and it *ought* to be the business of the producers, one would think, to know the extent of the supply. But do they? No, they look to the middle man for that also.

Now clearly, his interest and theirs are antagonistic. The rumor of short crops would sustain prices, but the report of large will bring them down; and then if after the crop begins to come forward, there be a rise, the speculator gets perhaps the largest share of it. This is so well known and understood that, as a rule, report makes the growing crop larger than it turns out to be, for the greater the exaggeration, the greater the margin for speculation. The instances of this are of common occurrence. As a case in point, I quote from a morning paper:

"The total receipts of cotton at all ports (the New York *Post* says) now amount to exactly 3,700,000 bales, which will be further increased about 50,000 by the first of September, making the crop nearly a quarter million in excess of the largest previous yield. The prospect for the coming crop is much finer than last, and with a similar picking season four millions and a half is considered possible."

Last May or June there was a cold "snap." Wheat growers said the crop was much injured thereby. But presently, New York had its agents out upon the ground who represented it to be a false alarm—that crops were never looking better, and the yield of wheat was to be unprecedented. But after about one half the farmers had sold their wheat, merchants began to say, and farmers to find out, that the crop is not so large after all.

Now, is it so difficult to obtain correct information as to the promise and the yield of crop, that producers must go to the middle man in the city to learn how their crops are in the country?

Suppose the effect of these exaggerated reports about crops be to diminish the price to the producer on the average ½ cent to the pound on cotton, and five cents a bushel only on so much grain as reaches tide water—you saw grain fall not long since in Chicago eight or ten times as much—what difference would it make in the aggregate annual receipts of producers? Only about eight million dollars, namely, four for the grain grower, and four for the cotton planter. This is irrespective of the collateral advantages of the plan, such as stability of trade, a more wholesome demand, and the like, which in commercial affairs always attend accuracy of estimate and correctness of information.

It appears to me that in this Bureau you have already at hand all the organization requisite for obtaining such information without cost and with but little trouble; and all that is wanting is only to put the machinery of a statistical department in motion.

Let the Legislature make it the duty of the sheriffs and their deputies in all the counties, to make monthly reports to the Agricultural Bureau, of the crop or the preparation therefor, according to the season.—Is the breadth of land in preparation for any particular staple greater or less than usual? How has the weather been during the month —favorable or unfavorable?

At another season, the reports would tell of the appearance and promise of the crops, the ravages of insects, the damage from unseasonable weather, and its extent from that or any other cause. In short, the reports for each month would give exactly that sort of information which would enable the Bureau to state in monthly bulletins the general result. Every newspaper would be glad of such a paragraph.

Now if this were done regularly, both planters and merchants would soon perceive that these returns, coming from the Bureau, would contain the most reliable accounts to be had of crops; and both merchants and farmers would go by them, and both, but especially the latter, would gain by them.

In a little while, and as soon as the plan was fairly understood by farmers generally, the compulsory reports of the Sheriffs might be dispensed with, the Bureau substituting therefor the reports of its own correspondents and affiliated societies. Other States would follow.

It is said concert of action among farmers is difficult. True; but it is not so difficult to get farmers together as it is to have combined action with sailors; and yet sailors have showed the utmost readiness to come forward with *daily* reports of wind and weather at sea. The result obtained, and the value and importance of the information derived from these simple reports have astonished all who use the sea. Make your plan general; press it upon the attention of other States; solicit the co-operation of their societies,—and my word for it, these monthly reports will prove as valuable and interesting to the farmers, as the abstract logs have been to mariners.

I dwell upon the importance of every State, or State Agricultural Society, having its statistical department; because the farmer is not interested in the crop of his neighbor alone, but as a seller, he is interested in crops in all parts of the country that meet him in market as competitors—and I attach great importance to *simple* returns—to formularies for co-operators which shall be of the most simple character, calling at first for information only upon such points as will enable your statistician to answer monthly or quarterly, the simple question: What of the crops?

Let the beginning be by little and little, contenting yourselves first with a few things, and they of the most obvious importance.—Afterwards, as you make progress, the scope and aim of the plan may be enlarged, so as to include statistics generally, and finally, perhaps, to embrace a system of agricultural meteorological observations in the State also.

There is here a convocation of planters from the cotton growing States. The object of their assemblage is to take into consideration just such measures as the one I am now advocating; and I hope this Planters' Convention will signalize its first meeting by the inauguration of a Planters' Bureau, or some other establishment, which will keep their constituents posted up as to the promise and state of the cotton crop, at least, if upon no other of the great staples.

Cotton will beautifully demonstrate the benefits of the system, for it may be carried out with cotton better and more convenient than with any other staple.

Cotton growers from all parts of the country are here; therefore, I say, make it general with cotton at once, leaving it to this gallant State, through her admirably organized Bureau, to bring up the rear with regard to the other staples and other States.

I say, moreover, to this Planters' Convention, now in the act of its first assemblage: Look to your commercial Conventions, and take warning. Keep men from the political commons out of your meetings, and prefer acts to resolutions.

By resolutions, your commercial conventions have ransacked the world for statistics; but the statistics would not come; nor will they come for you, unless you will put your shoulders to the wheel and your hands to your pockets. Do that, and you may get whatever you choose to call for.

As for these statistical returns and monthly reports, tell me the amount of cotton that is to be produced in the United States next year, and I will tell you pretty nearly what the price will be next season. This cannot be said of any other of our great staples, they are met in the markets abroad by foreign staples of like kind. Thus a short crop of wheat in England and on the continent will give us high prices for breadstuffs. But England and the compete not with us in cotton. India, Egypt, and Brazil, are our only competitors in the staple; but their competition is almost too feeble to be felt, for we greatly surpass them, both in quantity and quality.

The annual production and consumption of cotton have attained such proportions that the ratio between that consumption throughout the world and the production here in this country, determines the price of the raw article in all the markets of the world.

We may lay it down as a rule, that when the cotton crop is coming forward, its amount be over estimated, the producers have to pocket a loss in the aggregate nearly equal in value to the number of bales by which the estimated may prove to exceed the actual crop.

It is to the interest of the speculator to buy low and sell high. By representing the crop to be shorter than it really is, he is not enabled to buy cheap: but by representing it to be larger than it really is, he may be enabled so to buy. His interests and those of the planter in this respect are therefore antagonistic. Why should planters leave it to the speculators to collect statistics about the growing crop, and then, when selling time comes, go to him for information, and leave it to him to fix the price? If the brokers' estimates be a hundred thousand bales or so too high, the aggregate receipts of planters will be in money about the value of a hundred thousand bales or so too low.

I need not remind planters that had it been known this time last year certainly, that the amount of last year's crop was three millions and a half bales, instead of three millions and three quarters—I say, I need not remind planters, that in such a case the aggregate of the receipts for the three millions and a half would have been pretty near as much as it has been for the three millions and three quarters.

Of all other producers, the cotton planters can give the easiest and best proof of the advantages of the system I advocate, not only for cotton, but for all staples.

I hope that gentlemen will not separate without having provided for an organization —call it a committee—call it a Bureau—call it what you please, but let it be a working concern—which, as the season draws on, will enable the planter to answer the merchant well and truly next March, and monthly thereafter every year, till the cotton is all picked, the question that is ever on your tongue and his lips: What of the crops?

The above is the conclusion of the annual address before the State Agricultural Bureau of Tennessee, delivered by commander M. F. Maury, on Tuesday, Oct. 11th, 1859. We insert it in this Journal, for the information and benefit of the farmers and planters of North Carolina. The buyers of our staple crops, corn, wheat, cotton and tobacco, are interested in exaggerating the annual quantity of these productions. If the impression can be made that there is more than an average of any one of these crops, produced in any one year, the result is a downward tendency in the price. In this way, should there be several thousand bales cotton, barrels corn, hogsheads tobacco or bushels wheat raised this over and above that of the preceding year, yet the reduction in the price, not regulated as it should be by the demand and supply, but the misrepresentations of speculators, the farmers are not benefited as they should be by their increased crops.—Some method should be adopted to guard against this imposition. Commander Maury has suggested the true remedy. Let the farmers of this State profit by his advice.—ED.

For the N. C. Planter.

PUBLISHER OF PLANTER:—*Dear Sir:* Through your courtesy and kindness, I have been a regular reader of the Planter; and from the onset, I have felt a warm solicitude for its success, both from the interest I feel in every advancement in the noble art of husbandry and my sincere personal regard for its deserving proprictor. I think I have carefully perused every number from the initial issue; and though not identified with that peculiar interest to which it is devoted, I have invariably felt myself both interested and amply remunerated for the trouble of perusal.

Agriculture is a beautiful and interesting science, as well as a stern, utilitarian art; and it is a very mistaken idea to suppose that it presents no attractive feature to one pursuing the less practical departments of literature. Agricultural publications, instead of being dry and insipid, always abound with facts well calculated to interest every intelligent student of nature; and the tillage of the soil with other collateral subjects is ever a most entertaining study to the cultivated and inquisitive mind. No truly literary or scientific individual should fail to avail himself of the valuable fund of scientific information to be gained from periodicals devoted to the discussion of agricultural interests; and indeed the indirect interest, which every class of the community has in agricultural enterprizes, should induce every good citizen to aid in fostering every agency devoted to this object. But to the tiller of the soil, the agricultural periodical is a mine of information which no ordinary consideration should reconcile him to be deprived of. I can not conceive how any farmer can expect to successfully compete with his more intelligent and enterprizing brother without mutual benefit from the experience of agricultural writers. Apart from the mass of matter in these publications, each number contains one isolated item of information, the knowledge of which will doubly repay the price of the whole volume.

It has been to me a source of disappointment that the Planter has not received the sanction of a more cordial support from the agriculturists of the Old North State. I have really felt surprised that a State, universally conceded to be one of the finest agricultural districts in the world, and which justly boasts of the progress which it has been making in the various arts of life, should suffer the only agricultural periodical within its limits to languish for the want of an adequate support. The fact certainly affords but little evidence of the boasted spirit of improvement, and it should tinge with a blush of mortification the cheek of every good citizen, when considered in connection with the reflection that each of her sister States can boast of her publications, one or more, in the flood tide of successful operation. May we hope that a reaction will speedily take place in public sentiment in regard to this important matter, when this stain will be effaced from the escutcheon of the noble old commonwealth?

I must congratulate you upon the recent accession to your editorial corps. A somewhat intimate acquaintance with the gentleman whose services you have been so fortunate as to secure, justifies me in endorsing his entire qualification for the position. A native and, until recently, a resident of the Old Dominion, he has ever moved in the first ranks of society and filled some of the most responsible offices in the gift of his fellow-citizens, having, in his early life, represented his native county in the legislative councils of the State, and for many years been a prominent member of the County Court of which he was for years the presiding justice. The old commonwealth can illy afford to dispense with the services of such sons, but to his present adopted home she can be more nearly reconciled to yield him than to most others. If I mistake not, he is an Alumnus of the venerable William and Mary in its palmiest days; and though he has been chiefly employed in agricultural pursuits, I dare say he will soon feel quite at home in the editorial sanctum and that he lacks only a little practice to wield a vigorous and polished pen. But as he has, ere this, assumed the editorial tripod, your readers will have an opportunity of judging for themselves of his skill as a journalist. But more anon. INVALID.

The Progression of Primaries.

The analysis of soil and fertilizers is admirably written upon by Judge French, in a late number of the *New England Farmer*. We take from the article the following extract:

All substances in nature are said to be composed of sixty-four simples, which we first, or primarily find in rocks. The theory then is, that these rocks, in the lapse of ages, have been broken and worn away, and from their debris, soils have been formed. Next, we find those same substances in vegetables, and finally, in animals; the same, so far as the chemist knows; but changed or progressed, as the plants plainly tell us. Even the miscrocope which shows us eels, and even sea serpents, in Cochituate water, and rhinoceri on the surface of figs; which can detect at a glance, the different kinds of blood, and almost discern the oxygen in the atmosphere, can see no difference between these two kinds of phosphates. But the plants, with their instincts, sharper than man's reason, and more subtle than chemists' tests, decide that for their food, the one is far better than the other. Why is this so?

Professor Mapes, of New York, has been for several years discoursing upon this topic through the *Working Farmer*, and before the New York Farmer's Club. His theory is that the elements, which we may find apparently identical in the rock, and in both the vegetable and animal matter, are first taken up by the lower orders of plants like mosses and lichens, that they have thus progressed one step, and that on the decay of those lower plants, those same elements may now be suited to the constitution of plants of a higher order, and so on, till passing gradually upward, they form part of the food of animals, including man, and thus become a constituent part of flesh and blood. Having thus progressed, perhaps having again and again constituted part both of vegetable and animal substances, those elements acquire an aptitude for such organization, and so are the more readily taken up anew to be wrought into new structure, just as grape cuttings buried in vineyards from the best nourishment for the vine, and as egg-shells are found by hens, the most convenient substances of which to make shells for new eggs.

In the *Working Farmer* of April, 1855, Professor Mapes clearly states his theory, which we have attempted briefly to indicate. He there states as known facts, that if we apply a quantity of bullocks' blood to the soil it proves a powerful fertilizer, whereas if we apply the exact equivalents, so far as chemistry can tell us, taken from the primary source of rock, and dissolved, the effect as a fertilizer is very small; and so if we use phosphate of lime made from bones, and the same amount of mineral phosphate, the bone phosphate will prove by far the better manure. Yet the chemist's analysis finds the mineral phosphate taken from the rock at Crown Point, Lake Champlain, and other places, in various parts of the world, identical with the phosphate from bones, and sets them down as of equal value to the farmer.

Phosphates have no value for agricultural purposes, unless taken from organic life, like the blood and bones of animals. The phosphates from the phosphatic rocks and volcanic deposits, miscalled guanos, although ground and treated with sulphuric acid, have no value as fertilizers, and cannot be absorbed into the higher class of plants, such as are now required for the use of men and animals. They must first be taken up by lichens and mosses, and be progressed by them in a way which chemistry as yet has failed to discover, and on their decay and deposit of their phosphates in the soil, be absorbed by a higher class of plant for further progression, and so on through nature's laboratory, until we find the progressed phosphates occupying the bones of animals.

Feeding Stock.--No farmer can doubt, we think, that the system of stock management which obtains in this country, is a very loose one, if indeed it merit the title of "system." We doubt if it is a system, unless it be systematic looseness, not to say slovenliness.—It is true we urge the importance of keeping stock on a farmer. We believe it essential to its continued productiveness. But no farmer who has not used a pencil, or kept a stock account, knows the amount of hard cash his stock of cattle swindle him out of. Talking with a farmer the other day, who has had considerable experience as a stock grower, we asked him if his stock in the spring, and the manure made during the winter, would be likely to market at a price which would cover the value of the food given them, the labor and care bestowed upon, and the interest on their market value to-day. He doubted if it would, but didn't know. We fear there are a good many farmers who do not know, much less consider the fact, yet, persist in wintering and summering stock that is a direct tax upon them. It is a matter to think about and calculate upon. A herd of cattle are not always profitable as manufacturers of manure simply. In very many instances the cash they would sell for would purchase, and the labor expended in taking care of them would prepare more than double their value of manure. This is not an extravagant assertion, espec'ally in a country where manure is so little valued as here.—There is one or two points to be considered in the care of stock. Unless you are a fancy breeder, and sell at fancy prices, it is not profitable to keep any animal that is not constantly improving or yielding you a revenue in the shape of milk, or in the case of sheep, wool, or any increase of the flock. It is a rare good animal that pays the care and cost of keeping and interest on market value, either by direct product or advance in value. We do not assert there are no such animals, but we do assert that in proportion to the whole number in the Northwest, they are few An animal should improve constantly —we speak of neat cattle—and where the point has been reached, beyond which, the improvement costs more than it comes to, it is safe to sell at once. And that point is a nice one to discover. It is attracting the attention of the best breeders, and feeders in this country and elsewhere. Science is looking after it. How to supply an animal with such food, and in such quantities as to insure the largest amount of increase with the smallest possible loss, is a matter to be sought out—a problem to solve.

Arrangements of Trees in Orchards.

It has frequently occurred to me that much land is wasted which would be saved if the idea was presented to the minds of farmers and gardners. It is in this way: If a farmer wishes to plant an orchard, and wishes the trees to stand any certain distance apart, say thirty feet, the usual practice is to plant the trees in rows thirty feet apart, and the trees separated in the rows by the same distance, and forming squares. Now if the above distance from tree to tree is desired, and the trees are planted as above, one acre will accomodate forty-nine trees thirty feet apart in the rows, and a fraction over forty-two feet diagonally; but if the rows are twenty-six feet apart, and the trees planted thirty feet apart in the rows, and the trees of one row planted opposite the space of the next row, the acre will accommodate fifty six trees thirty feet apart in every direction.—The same principle holds good for cabbage and other plants, and for other desired distances.

Best Time for Sowing Clover Seed.

Thos. R. Blandly Esq., in the *Southern Planter*, gives the following as his experience in sowing clover seed:

"At what seemed a very favorable time in February, 1854, I commenced sowing clover seed. Something interfering, I did not finish before the tenth of April. Finding that whereas what was sown in February did not stand at all, what was sown in April, stood very well, I concluded in 1855 to try again the relative advantage of seeding at different times. Therefore I seeded part in February, part in March and part in April. The result was, that although that sown in February was on tobacco lots, that sown in April on the old field stood much the best. That sown February and March was tolerably good. This year I have sown altogether during the first week in April, and now it looks finely, having come up well. I did nothing to it after sowing. In April, I endeavored to select a time when the ground was dry; in the other months when the ground was puffy from freezing and thawing.

I would also report that last year I commenced sowing guano broadcast for tobacco, previous to bedding up the land; but at the suggestion of neighbors, I abandoned that plan and put the balance in the drill, using equal quantities; the subsequent treatment was the same. I applied about one hundred and fifty pounds at the time of hilling up the tobacco. The result was very greatly in favor of that upon which the guano was sown broadcast—it being much earlier, larger and riper."

Custard Pudding.—Two spoonfuls of flour, six eggs, one pint of cream, a little sugar, one nutmeg. Boil half an hour.

☞ Wherever you see a neat farm, be assured the manager is an economical man; where a farm is the reverse, the manager is not an economist.

Molasses Pie.—Make a good paste and line a dish with it, fill up the dish with molasses, in which stir a spoonful of ginger and vinegar, slice a large lemon or orange in it; 1 teaspoonful cinnamon; cover with paste and bake.

Wholesome sentiment, is the rain which makes the fields of daily life fresh and odorous.

EDITORIAL.

RALEIGH, JANUARY, 1860.

1860!

The present number begins a new year, and a new volume of the *North Carolina Planter*. The Publisher congratulates his subscribers upon the strong array of Editorial talent he has succeeded in associating together for their improvement. No agricultural journal in the country, I care not where published, presents a stronger array of Editorial knowledge and ability. And I intend to thoroughly test, this year, whether the Farmers of North Carolina *will* support a *home* journal of their own, or not.

Mr. Jordan, the Principal Editor, is a man of education—a farmer of thirty years standing, and one who has kept posted up with the practical and scientific advancements of his profession all the time. He has been, *sub silentio*, the Editor for three months past, and the readers of the Planter know, therefore, something of his ability to instruct and counsel on the science of Agriculture.

John W. Woodfin, Esq., of Buncombe county, has consented to become *Associate Editor* of the Planter. He is a gentleman extensively known in North Carolina, and of almost universal acquaintance in the Western counties, from Salisbury to the Tennessee line. It is true he is a Lawyer, by profession and extensive practice, but he is also known in his own community as being the *best* and most *practical* farmer in that section of country; and being willing to contribute of his knowledge and experience for the benefit of others, has consented to occupy a portion of the pages of the N. C. Planter every month.

Mr. Westbrook the successful Fruit-raiser and Nurseryman, has charge of the Fruit Department of the Planter; and

Mr. Hamilton, the scientific and practical Gardner, is Editor of that especial department.

With such varied talent and information, the North Carolina Planter ought to have five thousand subscribers to begin the new year with. Surely it will have that number in a few months.

For terms, &c., read Prospectus on cover; and then let every reader resolve that he wil strike for a noble club of subscribers to sen on to the Publisher as soon as possible.

Publisher.

☞ In assuming the Editorship of the North Carolina Planter, an introduction to its patrons, particularly, and to the people of the State, generally, with the view of increasing the former, from the great body of the latter, will not, we humbly conceive, subject us to the imputation of vanity or presumption. We have left the Old Dominion, with all her spendor, power and pride; the graves of our ancestors, wife and childen, the scenes of our childhood, the haunts of our boyhood, the mansion of our father, all that is near or dear to us on earth, save two children with us, to become a citizen of the Old North State. Here, as the conductor of an agricultural journal, our labors will be unremitted. An experience of more than twenty five years, in the cultivation of the soil, must have added something to our qualification for this position. Is there any demand for such a paper in the State? All will reply affirmatively. We offer you the only one published in your State. As an inducement to patronize your home journal, we refer you to the rapid improvements in agriculture in those States of the Union, which have preceded this, in the establishment and liberal circulation of such works.

North Carolina, with all her mineral wealth and other resources, now being developed, should not remain behind in this wonderful age of improvement. What has given this impetus to agricultural improvement in other States? Agricultural journals, State and County Fairs have had no small share in this glorious work. It is the interest, then, of all classes to foster these institutions. Will the members of the learned professions and industrious mechanics, inquire, what have they to do with the laborious and brow-sweating operations of the farm? We answer, gentlemen, you are totally dependant upon them. Need we undertake to prove, that the agricultural interest is the great deep from which all derive their support? The intelligence of the people, would deem it a work of Supererogation. How then will the lawyers, doctors, ministers and other professional gentlemen, mechanics and all, excuse themselves from subscribing to the North Carolina Planter? If you admit the necessity, or even the utility of an agricultural paper, your dependance upon the interest which it is intended to promote, makes it your duty to become a subscriber; yes, gentlemen, without agriculture you could not live; your fees, salaries and wages could not be paid. Without agriculture—all would go down in our generation—we should be a nation of savages, without clothes to wear, food to eat.

The working men of this community, as they have styled themselves, an honorable appellation, and the same applies with equal force to every other, go to their market every day for their provisions, and yet will not contribute one dollar a year to the dissemination of useful agricultural knowledge, which would enable them to purchese these articles upon better terms. Skill in any department of labor, renders the product of that labor, more abundant and cheaper, ; for the surplus, you have outlets to the markets of the world.—Nothing, is now wanting to elevate our adopted state to that position, which we should be proud to see her occupy with her sisters of the union, but indomitable energy, industry and enterprise on the part of her people. Our efforts will be directed to the consummation of this great work, and with their co-operation, success will crown the united effort.

Each succeeding number of the Planter, will contain one or more articles from our pen, communications from some of our most intelligent farmers, and articles selected from other agricultural journals. We cannot conclude this debut, in propria persona, without soliciting the patronage of all classes in the community, in an enterprise, undertaken for their benefit and our support.

J. M. JORDAN.

The Difficulties in the way of Agricultural Improvement, and the Remedies Suggested.

Among the topics of discussion which occupy the attention of economists in reference to agriculture, are the difficulties which lie in the way of improvement. These obstacles are classified differently, but the following arrangement, we think, will present them in the most intelligible light.

1st. The nature of the soil, location &c.—The only remedy for these, is the greater skill in adapting the crops selected to meet the difficulty, and more science and skill in mechanical cultivation.

2nd. The want of materials to enrich it and here also the remedy readily suggest itself, but it is a difficult matter to make ou people feel its practicability so as to apply it The modes of cultivation are so defective so much lost that might be saved, mines o fertilizing materials lying about their farm and plantations, that might enrich the soil and make it more productive.

3rd. The climate, temperature, &c., in regard to these, more careful observation comparisons and deductions are desirable than are generally bestowed, and this impo tant element deserves far more attention i the selection and adaptation of crops than often given to it.

4th. The want of market or communic tion. The time has been when this was co sidered almost an insurmountable, certain a very serious impediment to agricultur progress. The influence of this difficulty our, and nearly all other countries is constant and rapidly diminishing by the operation extended lines of rail roads, canals and te graphic wires. The time is rapidly a roaching, when no farmer will be so far from market, as the one who makes nothing to sell. Through the medium of these facilities, much has been and more will be done in gathering and diffusing knowledge of the prices of agricultural products and the demand for them, so that in every part of the country, the state of the market at home and abroad will be known.

5th. A fifth difficulty in the way of improvement, with many, is the want of sufficient force. The great error on this subject is, the extensive, instead of the intensive mode of cultivation. The great passion of farming on a large scale by which the amount of labor, material and capital is employed to less advantage, than when limited to a smaller one, prevails to an alarming extent in this country. The great improvement in machinery and agricultural implements will have some agency in lessening this difficulty. It can only be entirely removed by a knowledge of the science of agriculture. As long as the laboring material of the country, remains in ignorance of the fact, that efficiency and profit in agriculture cannot be realized on a scale too large for the force and capital employed, this difficulty will exist.

6th. The want of information among the people, their prejudice, their attachment to the modes of cultivation pursued by their forefathers, like the wagoner, who avoided the new and mired in the old road, because his father before him traveled it, their insuperable objections to what they term book-farming, thus refusing to avail themselves of the improvements of the times, form an important item in the catalogue of difficulties which retard improvement in agriculture. This repudiation of the new and improved mode of husbandry, keeps many farms poor and their owners poorer. Every statesman and every friend to the welfare of his country should bear in mind that the diffusion of agricultural journals among the people, is the only means of obtaining a higher standard of agricultural knowledge, the only method of remedying this difficulty.

7th. The inclination of the young men of the country to embark in the learned professions of the day, instead of engaging in the cultivation of the soil. We rejoice to know that the time has arrived, when labor is considered honorable; but, when the learned professions are regarded by many of the rising generation as too laborious and unremunerating, they seem to avoid the pursuits of agriculture for the more fluctuating and hazardous ones of commercial, mercantile, or manufacturing life.

But the aim and object should be to place agriculture first and foremost among the physical employments of the country, and to the successful attainment of this, a thorough acquaintance with its principles as a science, together with a knowledge of its abstracts as a practical employment, must be sought.—The instruction now afforded, in many parts of the country, by able lectures, addresses before our State and County fairs, the circulation of agricultural journals, will do much towards accomplishing the end in view.

But, in addition to these, the people of this State should demand at the hands of the legislature, a professorship of agriculture in their university. This is being done in other states; and why should North Carolina, with all her mines of wealth, be left behind in this progressive age?

Another, and the last difficulty in the way of agricultural improvement, which we shall mention is, the ignorance of what we would term the science of apportionment: by this, we mean the proportions to be maintained between different crops, the quantity of land, of seed, the number of laborers, the time to be employed, the expense of cultivation, the stock to be kept, the quantity of manure to be made, and how this is to be procured, the amount of crops, time consumed, and force to be employed in gathering them, &c., and indeed, every particular embraced in the operations of farming. Interrogate your most intelligent planters upon this subject, and perhaps, not one of the whole number could answer on this important branch of knowl edge, from actual observation of his own experience in the conduct of his farming affairs.

Let the farmers of North Carolina remove these difficulties, and there is nothing to prevent their success, as an agricultural people. If your state is becoming exhausted of the natural richness of the soil, yet every where within your reach there are abundant means to supply the deficiency. A proper application of the fertilizing materials, great care in the selection of seed, and a more thorough cultivation, will enhance its value even beyond its native opulence of the elements of production. Let the farmers of the country, outnumbering those engaged in all other branches of industry and enterprise, be true to themselves, sensible of their position, acquire a knowledge of their business, make an industrious application of it; and the agricultural interest will be great and commanding, control public opinion, cause the wilderness to bud and blossom, and every desert and solitary place in the land to be glad.

Let the farmers of the country march on with rapid strides in this great age of discovery and improvement, encouraged and stimulated by the co-operation of those engaged in all other industrial pursuits, combining and distributing the elements of prosperity, spreading light and instruction to all around, setting examples of industry, perseverance and success, fostering every good enterprise, rebuking fanaticism, and our country will soon become the mistress, and her resources the granary, of the world.

☞ We are in receipt of an interesting Communication, on the "Report of the North Carolina Geological Survey, 1858." The writer has failed to give us his name, and we have therefore hesitated about its publication, as our rule requires the real names of writers for the Planter being given to the Editor. But as the article is one that pleases us, we have concluded to publish it next number. In the mean time we hope the writer will give us his proper name, which of course will not be publicly given, unless desired.

Important to Wheat Growers.

From a series of experiments made in England and the United States, for the purpose of ascertaining the proper period of reaping wheat, it has been settled that the best time for performing the operation is, when it is in a raw state, or when the straw, from a distance, has a greenish appearance, but on a closer examination, is found to be approximating to yellow, and the grain separated from the chaff, is pulpy and soft, but not in the milky state. It is now the opinion of intelligent wheat growers, that, at least from $5 to $6 per acre are lost by allowing the wheat to become ripe before it is cut, and that, at the same time, its quality is injured. By reaping the wheat as above or at the time directed, a greater weight of grain is obtained, which produces more flour, of a superio
quality; the straw contains more nutritiv
matter, and is better for stock, and there i
more time and consequently a better oppor
tunity of securing the crop, and there is les
waste by shattering out the grain.

Like all other operations in the vegetabl
kingdom, the ripening of the seed consis
entirely of various chemical processes, th
nature or modus operandi of which, not bein
generally understood need not be explaine
but their results should be carefully observe
in order to determine when the reapin
should be performed. When an ear or hea
of wheat first fills, it is then said to be in t
milky state; in seven or ten days after, t
seed become more solid, and the straw b
gins to wither and assume a yellow appea
ance, from the ground towards the head.
this period, the straw will be yellow for 12
15 inches above the ground; in 7 or 10 da
more, the crop will be perfectly ripe; t
straw will be yellow up to the head, at t
stage the grain can be rubbed out by the han
On examining the seed, a perceptible diff
ence which has taken place since the last p
od will be that the skin will have become m
thicker and harder, which diminishes
quantity of flour. Now, this proves that

last change in the seed produces an increase of bran, and a relative diminution of flour, which will be the continued effect according to the time which elapses between the ripening and harvesting of the crop. Then it must be the interest of the farmer to cut his wheat before it becomes thoroughly ripe. The millers will not pay as much for wheat cut after it is thoroughly ripe, as for that cut in the proper state. It has been suggested by some speculative writer that new varieties of wheat can be produced by cross fecundation, in other words a mixture of several varieties and sown together.

The improvement of agricultural plants by cross-fecundation is a subject of the highest importance to planters. It would seem quite as feasible as the hybridizing, or cross-breeding in animals. We cannot from experience or any information in our possession venture to give any advice upon this new and important subject. We would like for some of our wheat growers to make the experiment and communicate the result. We do know, however, than an improved variety of indian corn can be produced in this way. Some years ago, we obtained and mixed five different kinds of seed corn, that is to say, seed corn selected from different farms in different neighborhoods—there was a marked difference in each variety—planted the whole in one field. The result was, a crop of corn not exactly like, but superior to either variety. We continued to plant this crop till it lost all appearance of the original varieties, save one, the best of the family.

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☞We find on examination of the matter in type for this number of the Planter, that we have, through an oversight, omitted to hand to the Printer the article on Soils, from Prof. Emmons' new work, which we promised in last issue. Our pages are full now, and we are reluctantly compelled to defer its publication till the February number.

The Improvement of Land.

SOIL AND MANURES.

Having prepared your lands by thorough drainage for the reception of manure, we will now undertake to give some directions about the different fertilizers of the soil and their proper application. Everything used to improve the natural soil, or to restore its diminished fertility, comes under the denomination of manure. The texture of the soil, and the proportions of the different earths of which it is composed, constitute its productive powers and susceptibility of improvement. A natural loam, capable of retaining moisture and not saturated with water, sufficiently porus to permit atmospheric influences, cannot fail to be more productive than loose sand or tenacious clays. At the same time it is equally obvious to every intelligent agriculturist that the best structure of soil will not produce good crops for any length of time without a proper mechanical and chemical treatment. The cultivation of land is so variant and different in different countries, that you will not find the same system adopted in any two, not in any two of the States of our own. Why this diversity of cultivation? The answer is, that the cultivators of the earth in one portion of the world have not informed themselves of the best system, that the people of one part of the globe are ignorant of the mode of cultivation in another. How many tillers of the soil can enlighten us on the modus operandi of manure? When interrogated on this subject, they respond that there is something in the excrements of animals which assist in the nutrition and growth of plants without pretending to understand their component parts, properties, or how they act on the production of vegetable matter.

In addition to heat, light, moisture and atmospheric influences necessary for the development of plants, generally, certain substances are found to exercise a peculiar influence in the development of particular plants. These substances are constituent parts of the soil, or are supplied to it in the form of substances commonly called manure. But what are the constituent parts or properties of the soil, and what are the components of the substances applied as manure? Until the farmers of the country can understand these points, no rational and profitable system of agriculture can exist. What is necessary before they can arrive at a complete solution of these questions? They must consult the pages of physiology, agriculture and chemistry. This can be done to some small extent by subscribing to and reading the North Carolina Planter, the only agricultural journal in the State.

The great object of agriculture is the production of food for the support of the human family and the various animals necessary for this purpose. This great object can only be attained by a judicious cultivation of the soil, which consists in the application of those substances indispensable to the development of plants, their growth and consummation. A system of agriculture which does not enable us to accomplish this, should be abandoned. The composition of soils form an important feature in the profession of Agriculture. It is the duty therefore of the conductor of every journal like this, to enlighten its readers on this subject. We do not profess to be chemist enough to enter into a minute analysis of the component parts or properties of soils. There are other and various modes of arriving at these facts, which every intelligent farmer can understand and adopt, without recourse to the crucible, the labaratory or other apparati of the chemist, geologist or natural philosopher. The simplest is to compare their texture and construction, the size and form of the particles of which they are composed, and to trace, if possible, the source of their original formation, whether from minerals or the natural constituents of a good soil, clay sand and lime. In regard to the mineral formation of soils, we must refer all our reading farmers to Professor Emmons' Manual of Geology.—Geology is no longer a hidden, occult science concealed in the bowels of the earth. Your scientific State Geologist has dug it up and translated it in plain English language.—The labors of this gentleman and his efficient assistants will be worth millions of dollars to the Old North State, and their discoveries are not yet completed. The recent explorations of Prof. Emmons have developed the algalmatolite or soap stone of Nantahala valley. This is not the common soap-stone, though it may be used as a substitute for it, its chief commercial value is that it can be employed in the manufacture of porcelain. It is worth for this purpose in Europe $300 per ton. In New York for making fine pearl paper and fancy soaps it is worth $40 per ton. The mineral wealth of the western part of the State is incalculable. Let the West then present an undivided front in favor of the internal improvement of the State. Without your rail roads your mineral wealth will be useless.

We hope our patrons not immediately interested in this subject, will pardon this degression from the offensive theme which forms the head of this article—Manures.—Soils formed from the disintegration and decomposition of the primitive rocks, such as granite, basalt, or limestone, are naturally fertile and soon enriched by cultivation.—The hard particles of soil thus formed preserve a porosity, which allows air, moisture and the warmth of the sun to circulate, while the alumina of all sub-soils, prevents evaporation, and the silicate of potash to be found in all these soils, is highly favorable to the vegetation of all plants containing this property. Sand and clay form what is commonly called loam, and which, when the sand is in due proportion with a mixture of organic matter, forms the richest and most valuable soils The only deficiency in this soil is organic matter, but this is so readily supplied that these loams which neither retain water too long nor allow it to percolate too rapidly, may be considered as a soil eminently capable of the highest degree of cultivation.

In addition to these formations of soil, there is a third called the alluvial, formed by the deposit of a variety of earths in a state of minute division, and mixed with a portion of organic matter, constituting by far the most valuable lands. These soils are found on the course of rivers which traverse extensive plains, and which have such a current as to keep very fine earth suspended by a gentle, yet constant agitation, but not sufficiently rapid to carry along with it coarse gravel or sand. Whenever there is an obstruction to the current, and an eddy is formed, there the soil is deposited in the form of mud, and gradually accumulating, forms those alluvial soils which are so remarkable for their fertility. These alluvial soils will produce a succession of crops with little or no addition of manure. This is owing to the intimate mixture of the earths with organic matter which prevents their consolidation into a stiff clay, and the gases which are continually evolved from this organic matter keeps the pores of the soil open, and favors the growth and nourishment of the roots. From this you will perceive that organic matter is essential to great fertility in any soil, but some soils require more of it than others. The decomposition of this organic matter in the earth, evolves certain elements which the roots of plants absorb in their incipient state, and from which they imbibe the carbon found in all vegetable productions. Organic matter likewise acts as an agent in opening the pores of the soil, and admits air, moisture and the heat of the sun to the roots, without which they would dwindle and perish. The learned Professor Leibig, more theoretical than practical, pardon the expression, departs from this teaching. He says, "Land of the greatest fertility contains argilaceous earths, and other disintegrated minerals with chalk and sand, in such a proportion as to give free access to air and moisture. The land in the vicinity of Mount Vesuvius may be considered as the type of a fertile soil, and its fertility is greater or less in different parts, according to the proportion of clay or sand it contains. The soil which is formed by the disintegration of lava cannot possibly, on account of its origin, contain the smallest trace of vegetable matter, and yet it is well known that when the volcanic ashes have been exposed for some time to the influence of air and moisture, a soil is gradually formed in which all kinds of plants grow with the greatest luxuriance."

The learned professor, seems to have lost sight of the fact, that the fertility of this soil is owing to the alkalies contained in the lava, and these alkalies by long exposure to the weather, produce vegetable matter. We readily admit that soil formed from the disintegration of lava possesses no organic mattter, but time and the action of the weather impart an inhalative property to this soil, and thus produces a revolution in its character or original constituent properties. This soil in other words undergoes a chemical change by the action of the weather. Would manure applied to any soil ever produce vegetation previous to its decomposition? Certainly not. Manure unfermented, remains inert, inactive, a mass of inorganic matter. What is essential to its decomposition? air, moisture and the heat of the sun. Hence, the folly of applying manure to land and burying it immediately with the plough, so far below the surface of the earth, as to deprive it of the agencies necessary to its decomposition. In regard to the proper application of manure, 99 of every 100 farmers in the country are laboring under a mistake. The proper plan for manure is on the surface, there to remain till it is necessary to break up the land preparatory to planting the crop. This is a new theory in the agricultural world; do not condemn before you give it a fair trial. Try it on a small scale, manure two acres as near alike as possible, with the same quantity and quality of manure, turn the manure on one acre under directly, let the manure on the other remain on the surface until planting time—apply this manure in August if you please, and if the last acre does not produce more than the first and leave the land in a better condition, we will pay for the deficiency at the rate of $5 per barrel in corn.

We have now given you the formation of three different soils, imperfectly no doubt. That formed from the disintegration of rock and other minerals; that formed by the combination of clay, sand and a due proportion of calcareous matter, and the alluvial. Every intelligent farmer in the State, will be led to inquire, to which of these formations does his farm belong? Without this knowledge he cannot undertake a judicious improvement of his farm. This can be done by reference to the preceding statements of each formation, without a chemical analysis of the soil, which is beyond the reach of a large majority of planters. It is impossible to do justice to this subject in one short essay; it will be continued in several of the succeeding numbers, and the latter branch of the subject, manure, particularly considered. All fertilizers of the soil, of which we have any knowledge, will be recommended, and their proper application prescribed, and if we can succeed in making two bushels of grain grow where only one grew before, we shall expect the list of subscribers to the Planter, to run up to ten thousand. We return our thanks to the presses of the State, which have so liberally recommended this journal, and respectfully solicit them to keep it before the people. North Carolina, our adopted State, is destined to become a great commonwealth. She has the means within her reach to make herself such; when asked for her jewels, she can point to her sons. We call on them to develop her resources, and by a wise policy prevent the emigration of her people, and she will soon assume the position to which she is justly entitled among the States of this confederacy. We cannot conclude without paying a tribute of respect and expressing a profound veneration for our Alma Mater, the Old Dominion, God bless her, and preserve her from the violence and bloodshed of northern fanaticism. We have left her soil, but can never forget her; our children are there. When again invaded by northern devils incarnate, urged on by their pulpit orators and senators in congress, if not repulsed before we can reach there, we will fly to and die in her defence.

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COMMUNICATIONS.—We thank those few friends who have furnished us with original Communications for this number of the Planter. We assure them they are highly appreciated. We have begged and importuned our North Carolina farmers, so long, to write for the Planter, and so few have responded, that we have thought it would be as well to say nothing more on the subject. Well, we won't—only this:—Many say they are not capable of writing for the Press: we have tried to persuade them to the contrary; but it seems we have failed. We therefore say to all—if you will give us your ideas, your experience, your views,—we care not how crudely expressed—we promise to put them in "ship-shape," and make them appear respectably when they appear in print. Now, then, let every body write. We want to present the next No. of the Planter composed entirely of original matter. Who will help us?

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☞ In the December No. we published an able scientific article from the pen of Prof. Emmons, on "Certain Results which are obtained by the Rotation of Crops," in which some technical terms are employed, to the understanding of which the following explanation is perhaps necessary:

Apocrenic Crenic Acids.—The matter composing vegetable tissue of their organisms, when deprived of life, passes through a series of changes. It is a decay which has been called by Liebig, *eremacausis*, which means a slow combustion. The black or brown vegetable matter of a soil has already undergone a slow combustion. In this State it is generally called *humus*. Now humus is a complex body, certain portions of it having undergone a greater change than other portions, and that part which has become really soluble, is that which the celebrated Berzelius called *Apocrenic and crenic acids.* These bodies give to swamp water its yellowish hue, and they are important, inasmuch as it is to their presence that soils owe their fertility in a great measure. When in a state of activity they combine with lime, ammonia, magnesia, iron, &c., and form soluble salts, which, as they are composed in part of organic matter, are really easily assimilated to the constitution of the plant. All the changes in the body of humus, tend to the production of these acids. When these, however, undergo further decomposition, they are resolved into carbonic acid water and ammonia, which being intermixed in the soil, becemes also food for the plant.—These names then are applied to that part of a mass of humus which *are soluble*, and give to water its yellowish hue. Our mineral spring waters also contain these acids, in combination with iron, lime, magnesia, but in the latter case the water is perfectly transparent. When free they have a bitter taste.

◆

COUNTY FAIRS.—We have been sadly disappointed, by not receiving Communications for the Planter about the County Fairs that were held in Duplin, Onslow, Moore, Richmond, Sampson and Randolph Counties, since the December No. went to press. We are at a loss to account for this. We thought we had friends in each of these, who would have given us at least a brief notice of the success of each. Some of them could write to the Newspapers about them, but not a word to the Agricultural paper! Strange!

Well, the only notice we can give of them, is—that from the accounts we have seen published, each of these Fairs was a complete success, in all the departments on exhibition; and that the spirit of Agricultural energy and enterprise manifested, give promise of many places made desolate by the ruinous system of farming under the dominion of old-fogyism and ignorance, yet being caused to blossom as the rose, through the enlightened and intelligent spirit of advancement now abroad in the land.

Caution.

In looking over the Raleigh Register of the 17th ult. we saw Mapes' Superphosphates of lime, advertised for sale in this city. We deem it our duty, as the conductor of the North Carolina Planter, to call the attention of the farmers and planters of the State to the following extract from the report of Professor S. W. Johnson, Chemist, on Mapes' Superphosphates of lime.

"HENRY A. DYER, ESQ.—*Dear Sir:* Of all the many fraudulent and poor manures which have been from time to time imposed upon our farmers during the last four years, there is none so deserving of complete exposure, and sharp rebuke, as a series of trashy mixtures known as Mapes' Superphosphates of lime."

In our next number, we will publish the report of Prof. Johnson on the character and value of Mapes' Superphosphates of lime, in full, and expose the humbug.

EDITOR.

◆

For the N. C. Planter.

Agricultural Societies and the West.

In accordance with a statute of the North Carolina Legislature, the organization of Agricultural Societies in the different counties in the State, is encouraged by the contribution from the Public Treasury, of the sum of Fifty dollars, to be paid whenever the organization of such a society, properly certified, shall be made known to the Treasurer.

This is all right enough—indeed it is liberal, on the part of the State—but practical experience has demonstrated beyond doubt, that the counties west of the Ridge cannot organize such a society and keep it up, in the manner it should be done. We are too far from a market, (we have no rail road facilities) for our articles of produce to demand a price sufficiently inducive to our farmers, to arouse a proper spirit of emulation among them, in their cultivation and productions.

Our object in addressing this communication, to your readers "beyond the Ridge," is—that we may consult together, and if possible, suggest some more efficient plan for Agricultural Societies, in our end of the State. It is well known, that our agricultural productions, beyond mere home consumption, are few; and that with the exception of live stock—a few mules, horses, and cattle—our farmers rarely produce any thing for transportation. Why is this? Simply because, as we before remarked, it is too far to a market, to attempt to convey away what otherwise might be our surplus produce, in a wagon.

With the means of transportation, we propose at present having nothing to do, leaving that subject to future legislation; but in this article we design discussing the best means of promoting our agricultural interests, by holding annual fairs. In the eight counties on this side the mountains, there are at present—(and never have been more) but two regularly organized Agricultural Societies. Now these counties comprise a considerable extent of territory, embraced in the counties of Cherokee, Macon, Jackson, Haywood, Henderson, Buncombe, Madison, and Yancey. Some of these counties have been proven to be the best corn-producing counties in the State, according to size and the amount of effective force employed in the cultivation of that article; while all of them are regarded as far superior to *any* or *all* other portions of the State as a grazing country—adaptable to the production and growth of Stock. These counties form a sort of united sister-hood, inasmuch as they have, in the matter of internal improvements, been rather cut loose from other portions of the State, and emphatically left to *shift* for themselves.

Now these eight counties have a right to demand from the Public Treasurer—(after raising the proper amounts within their own limits,) the sum of $50 per year for the organization of Societies. This opportunity has passed hitherto unembraced in all but Buncombe and Henderson. These two counties have endeavered to sustain their societies, but they have found it almost a failure, because the premiums are so small, as to scarcely invite competition for them. Indeed, it does not pay a farmer for his day's labor, for driving his stock, and hauling his produce to exhibition; and the consequence has been, that farmers who live any distance from the place of exhibition, pay little or no attention to the matter; and others, who live near, and to whom it is but little trouble to exhibit, come in and take *all* the premiums. Then the cry is heard at once, "*partiality, partiality!*" And these counties have almost come to the conclusion to abandon the enterprise altogether.

Now the question arises. How shall we remedy this? How shall we maintain fixed and interesting exhibitions?

This is what we propose to discuss in *our* Planter; but for fear that we weary the patience of your readers, we will reserve our opinion for the next issue.

REFORM.

For the N. C. Planter.

Mr. Editor: Wishing to do my part in sustaining the Planter, I herewith inclose a dollar for its subscription; and will also offer a word, through its columns, to my brother farmers—I mean the plain, homespun farmers, such as have had practical experience with the plough and hoe.

We have done by our cotton crop as we have in old times done with our corn crop: we cannot make each other believe that we plant too much land, or that the same manure we put on two acres, put on one, we would make as much cotton and leave the land better off; or that it takes less cultivation, or less time to save it, &c.—The farmer does not like the idea of his neighbors having hundreds of acres in cultivation to his fifty's. His neighbor plants for so many hundred bales, and he must do the same. His neighbor hauls an abundance of poor dirt that has never been made but little better with either stable manure, cotton seed or ashes, and he must do the same. His neighbor plants the same field year after year with this kind of manuring, and adds field after field every year to get the required number of bales, and so does he. But every year the *blight*, the *rust*, or the *frost* is the cause of his not succeeding, and they try the same old plan again and again, until their land is no better than it was ten years ago.

I have known a tolerable good crop of cotton and corn to be made for twenty years in succession, by manuring annually; but leave the manure off one year and the land will be no better, if as good, as at first. I believe the farmers generally should plant less land, manure it better and rest it more. My experience has proved to me that the better the land is manured for cotton, corn, wheat or ruta baga turnips, the better it pays the first and every year afterwards, with the right treatment. I manured eighteen or twenty acres last spring, for cotton, that would not have made more than two hundred pounds of seed cotton to the acre, from which I have picked a bale to the acre; and I think the land will make a thousand pounds to the acre next year, as it is. But I shall not try it without manure, as I wish the land to retain its present state of cultivation. The third year I expect this land to lie in weeds or sow it in peas. I am satisfied that two years in succession is enough for old land to bring the same crop, manured or not manured; and if I had enough open land, I would never plant it in any crop that had to be ploughed or hoed, but once in three years. I am convinced that long successive cultivation of crops on the same land (the cotton crop in particular,) is more subject to disease than it is on land rested every other year, or once in three years, to say nothing about impoverishing the land, which I believe to be the case. The twenty acres spoken of had one hundred horse-cart loads of swamp mud, one hundred bushels of ashes, forty bushels each of stable manure and cotton seed to the acre.

Yours, truly,

Scotland Neck, N. C. J.

To Keep Apples.—If apples are carefully packed in hard wood saw-dust, they will keep through our coldest winters. This we have tried, and know it for a certainty. In packing, care must be taken that none of the apples touch the barrel, nor each other. We have had them open in fine order, when thus packed, long after those in the cellar were rotten, or so withered as to be useless.

U. S. Journal.

For the N. C. Planter.

Snow Hill, N. C., Dec. 1859.

Mr. Editor:—I have been a subscriber and reader of your Planter ever since it was published, but have never made an attempt to write you anything for publication until now. I was raised on a farm and am now in my 54th year. In my raising, my father cleared so much land in one body that rail timber has got to be very scarce. I have at least 1000 acres of land fenced for farming, which requires a great many rails to keep the fence up. Now, if the thing was changed, our stock fenced up entirely, and let the farm go out, I could by fencing 200 acres keep my stock all up, which I verily believe would be one of the best things that the farmer could do. We could take better care of our stock, improve our breeds of cattle and hogs, and they would do us more good and would not pick our fields to starvation; our lands would improve faster, and all the time we now spend fencing our farms, we could be making *manure*, clearing, ditching or making whatever improvements are necessary. I think the change would benefit every farmer in the State, as much as it would me. I do hope the farmers of North Carolina and other States will duly consider these things, and at our next Legislature that the laws as relates to fencing and farming will be so remodeled that the changes may go into operation. I have named the subject to several of my neighbors, and they every one coincide with me at once. If you think this piece worthy a place in your columns, please insert it, or make whatever disposition of it you please; but I do hope every paper in the State will take hold of the subject and keep it before the people, until the thing is accomplished.

Respectfully yours,

HENRY BEST.

The subjects embraced in the above communication are worthy of consideration and we commend them to their attention.—We have our doubts, however, as to the feasibility of the plan.—Ed. Planter.

Barns shou'd be looked to at this season, as less feed is required for cattle that are protected from the weather.

Horticulture.

S. W. WESTBROOK, EDITOR.

To My Readers.

In entering upon the third year of the publication of the N. C. Planter, and still occupying the position of Pomological (or Fruit) Editor, I feel that it is due my readers to offer an apology for the small amount of time I have been able to give latterly, in filling up the pages allotted me by the Publisher. But what I have aimed at, has been to give *reliable* information and advice, rather than speculative and doubtful theories.—What little I have written, has been of the former kind, and such as I have tested and proven to be true.

Without further apology, I re-iterate the following articles, which it is important that Fruit-raisers should bear in mind especially at this season of the year. Hereafter I hope to be able to give more attention to preparing matter for this department of the Planter, on subjects that are occupying so much attention of the people of North Carolina, and the Southern States generally.

* * *

Heading back, or Foreshortening.

In our warm, sunny South, all fruit trees and plants, form more luxuriant or rampant heads, than they do in a colder clime. In fact, in some trees, such as the Peach, Plum, Apricot and Nectarine, there appears to be an uncommon proneness to longate all the extremities of the vertical branches, while the latterals and inner limbs perish, to a great extent, for the want of a sufficient supply of sap. There are two prominent reasons why trees should not be permitted to grow thus. The first is, that all fruit trees should be trained low, in the Southern country, so that the branches may shade the trunk of he tree from the scorching rays of the summer's sun. And the second reason for low training is, that if a tree is permitted to grow tall, it is not strong enough to bear up a heavy crop of fruit at the extremity of its branches, which must inevitably break, or split off from the main stem; and if the limbs of the tree are not mutilated by the weight of the fruit, then the roots must give way, because the whole weight of the tree, and fruit, is acting upon them with lever power. Now, while these are *two* prominent reasons, at least, why fruit trees should not be permitted to grow tall, there are several advantages secured in low training and the foreshortening system: The first is, that the fruit grown upon such trees is much larger and more delicious and juicy than that grown upon trees that are not cut back. The second advantage secured in low training is, that the fruit can be gathered much easier and without bruising. And in the third place, if the system of foreshortening is properly carried out, a greater number of trees, by one-third, can stand on an acre of land; and the product will be much greater, and the trees will last longer than if they were permitted to grow without training or forming.

In performing the work, one-third or one-half of the new wood of the outer branches should be cut back smoothly to a leaf-bud; and the upright thrifty shoots should be pruned off to the first fork, and even lower, if necessary, to form the top of the tree into an obtuse cone. All superfluous branches or limbs should be trimmed off from the inner portions of the large limbs; but let that portion of the work be done with care; for if the larger limbs of a tree are made bare by clean pruning, they are as liable to be blighted by the rays of the sun, as the trunk of the tree when it is exposed. The Peach, Plum, Apricot and Nectarine, may be foreshortened any time between the time of defoliation and the time of blooming, but it would be better to defer any inside pruning until April, at which time the wounds will heal more expeditiously.

The Grapery.

It is of the utmost importance that all grape vines (except the Scuppernong) should be pruned annually, in accordance with the foreshortening or cutting back principle, in order that the vine in after years may assume more of the stocky character of a tree than a vine. In order to effect this thing, the vines that were planted last season should have been cut back during the months of October or November, or the first half of January, to two buds. We would still prune even later than January or February, as there will not be much danger of the vines bleeding, if spring has not actually set in. Those planted two years should be cut back to four buds. Those planted three years should be cut back to six buds, and when they commence growing, pinch back all but three branches. During the growing season train the top or center vine perpendicularly, and the other two horizontally. At the close of the fourth year, cut back the three branches to two buds each; when they start to grow in the spring, pinch back or rub off the lowest bud on each prong of the vine; train them as directed for third year. The vines, if they have been planted in a deep rich mould, will be large enough to train to a trellis, which should be formed by planting hewn or sawed posts of durable timber eight feet apart and eight feet high, with No. 2 wire placed horizontally upon the face of the post ten inches apart. The wire may be fastened to the posts by small staples, or it may be wrapped round the projecting heads of twelve penny nails that have been previously driven into the posts for the purpose. The wire should be drawn as tight as possible. Upon these wires train the three branches of the vine perpendicularly, fasten the central branch to the center of the trellis, train the other two horizontally to within twenty inches of the posts on either side of the main stem of the vine, from thence train them up across the wires parallel with the posts, so dividing the distance on the face of the trellis that each prong of the vine will supply new wood enough to fill the whole face of the trellis. The new wood should be trimmed back to one or two buds on the main perpendicular prongs of the vine annually, which should remain stationary, for the purpose of forcing out new latteral branches on the wires, to produce the annual crop of grapes, which will be very abundant and of superior quality. Twenty vines, treated in accordance with these instructions, and planted in a deep rich mould, will be large enough to train to a trellis, which should be formed by planting hewn or sawed posts, of any timber that will last well under the ground.

Grafting Bandages.

In grafting fruit trees above ground, as when a worthless variety is headed off and choice varieties inserted, it is necessary to use something to exclude the air in order to secure success. Clay and wax have generally been used for this purpose, but the following plan, which we have practiced with success, is far preferable, being neater and more easy of application:

Procure well worn cotton or linen rags and tear them in strips of about one inch in width. They may be of any length. Roll these like a surgeon rolls his bandages, or if you are not sufficiently adept at this you may roll them upon a small stick. Have them rolled smooth, and let the end of the last strip wound always overlap the end of the former, otherwise in using them it will be difficult to find the ends. Make up as many of these rolls as you choose, having them one or two inches in diameter, according to your fancy. Now make a composition in the following proportions: Resin, 1 lb; Beeswax, 1 lb.; Tallow, 1½ lb.; melt, and when perfectly mixed in the pot, place these rolls, (the last end being fastened by means of a pin or string to prevent its unrolling,) not simply to *soak*, but to *boil* in the mixture until all foam and bubbles cease to rise to the surface; for not until then is the air expelled from the rolls and the vacuum filled with the wax. After the bubbles cease to rise, the rolls may be taken out and hung up to dry and cool. To use: graft in the usual manner and bandage with these air tight plasters by unwinding it as needed. A few turns will exclude the air and insure success.—The warmth of the hand will cause it to stick without tying; and if the rags are old and tender, no further care need be given them, as the growth of the wood will cause them to tear as it expands.

As the grafting season is close at hand, we recommend this plan to ameteurs and cultivators,as one that will give them every satisfaction, and set aside the annoyance of waxed or clayey hands, which they have formerly experienced in their grafting operations.

For the Ladies.

FLORICULTURE.

In our favored clime, during the winter it is seldom gardening operations are at stand, except in very wet spells. Improvements can generally be proceeded with, for the next three months; alterations and improvements of old places should be pushed forward vigorously, being careful all alterations will be so many improvements.—Clumps and belts of Evergreens should be planted in the most prominent positions for effect, and if the place be small, plant so as to hide as much as possible one walk from another. The clumps and belts thus planted should be raised at least one foot higher than the natural level of the ground. The shape of the several clumps should be gracefully formed and proportioned to the size of the grounds, also the style of and size of the dwelling must be taken into consideration; the walks gracefully curved, and where practical, run between large and shady trees, at the base of which rustic seats may be made, the tree forming the back of the seat; the walks margined with turf, also the belts and clumps.

In forming the beds, care must be taken they conform to the outlines, showing boldly the swell of the circle or the different graceful curves, always bearing in mind that trees and shrubs of dwarf habits must be planted in the front or near the edge. Do not plant any nearer the edge than two feet. The space between the margins and the trees can be usefully employed by bedding out plants; and near the dwelling by one single row of Mignonette, sown a foot from the margin; a few scarlet Geraniums or Verbenas help the appearance of the Mignonette greatly. Five dollars expended on bedding out plants in the spring, pay more than cent per cent in the appearance of the place, if the colors are well arranged.

We here raise our voice in favor of distinct beds or borders of Flowers—not a dozen colors together, spoiling the effect of each other. We have a great many amateur Lady Florists, who certainly do know how colors should be arranged to look best; and we hope the next summer to see more than one fine display, showing how beautiful gardens can be made to look by proper management, and good taste in arranging the colors.

Ornamental Wire Trellis.—We are glad to observe a growing taste for wire Arbors, Arches and other kinds of Ornamental wire work. It is neat, light and pretty, also more lasting than the cumbrous wood frames, so often put up. We do not say it ill-naturedly, but there are posively ugly pieces of wood miscalled Ornamental work, for plants and vines to run over. In using the wire [illegible] nd belts, painted green, they look neat and pretty even when not covered with plants. Vines when planted so as to run over them, seem to delight in clinging to the small neat wire, and grow more rapidly than when they have to climb up white painted scantling. We have heard it urged that the sun in our climate is so hot as to burn and kill the plants in the summer. In reply to this we beg to say, this thought must have originated with some one whose knowledge of wire trellis is very limited indeed. We are perfectly willing to agree to replace any and all plants which are killed by growing on wire trellis. And further, we would recommend the use of small wire for placing round the edges of flower beds, especially Verbenas. They are by this pretty bordering kept within bounds, and do not need so much attention as when the bordering is not used. It certainly does look very pretty, especially on terraces. We trust some of our subscribers will try this, and send to us to replace any plants killed by growing on, or coming in contact with the wire.

W. H. HAMILTON,
Landscape Gardener,
Raleigh, N. C.

Hotbeds—Vegetable Garden.

The sooner the first hotbed is ready for the cucumber and egg plant seed, the better. Be careful there is no rank steam in the frame; if there is any danger, leave about half inch of air on or at the back at night; keep the plants, if in pots, within six inches of the glass, and sprinkled or syringed in fine weather, morning and evening, after sunrise and before sunset. The water, if possible, should be 5 degrees higher than the temperature of the frame. The temperature of the Cucumber frame should range from 70 to 80 degrees—never lower if it can be avoided than 70. A few Tomatoes for early fruiting may be grown in pots in the coolest part of the frame, which will be the end of the frame and down at the front.

Cold frames may be got in readiness for the sowing of small seeds, such as cabbage, early celery, beets, lettuce, &c. Our friends will recollect liquid manure is a powerful stimulant, judiciously employed. We trust they will make good use of it. Cucumber plants, or anything else growing in the frame requiring a shift, will need the temperature of the soil in which they are to be placed, to be the same as that in which they are growing. To do this, put the mould in the frame and let it remain twenty-four hours before using. Admit the air to the hotbed gradually, and take off the same way.

VEGETABLE GARDEN.—The earliest kind of Garden Peas may be sown as soon as the earth is dry enough. They do best sheltered from the north by a ridge of earth about a foot high. Early plants of lettuce may have a similar shelter; they grow much more rapid than when they have no protection: eight to ten inches apart is far enough in rich earth.

ASPARAGUS.—Where roots are plentiful, a few dozen may be taken up and placed in a hot bed, covered with six or eight inches decayed tanner's bark; place boards or shelters on the panel, covered with straw; sashes are not needed, as this vegetable does not require light, but heat, say 65 to 70 degrees.

RHUBARB, or PIE PLANT.—A few roots may be lifted and placed in any warm sit uation, to push forward the stalk, which they will do in a few days; does not need much heat or light. If not convenient to take them up, place a flour barrel over the root and cover it well over with hot manure.

IRISH POTATOES.—Fox's seedling or any early kind may be planted on a south border for our early supply, and place the manure under them not on top; those that have been planted the past fall will undoubtedly be the earliest if in a sheltered situation.

W. H. HAMILTON,
Landscape Gardener,
Raleigh, N. C.

Impositions.

The Southern Homestead says, a French Itinerant in that neighborhood, sold bulbs of the Squill, for the magnificent Brunsuigia-Josephine. or Josephine Lily, and roots of the Columbine or of a Thalictrum—a common weed—for the British Queen Strawberry. We agree with the Gardener's Monthly in saying, "it served them right." Such ignorance is inexcusable. But we need not leave our own city, to find plenty that have been similarly humbugged, and are ready again, if anything offers with a high sounding, if not new name. If new, so much the better chance the Itenerant has of getting, them to swallow the bait. Roses are frequently presented, with a bud inserted, the stock shortened to within a foot of the root, and sold as *rare* roses, at auction here, and in nine cases out of ten they are miserable trash. One hundred dollars were paid the past spring in one instance, for what really was not worth ten. But then such *rare* things, and all labeled and so cheap! who would not buy and be humbugged on a small scale? Respectable Nurseymen ask 75 cents for what we get at auction for 25 cents, and then we don't find it out for some time. We *think* there is a good chance the next spring for our own people to be still farther humbugged to the tune of seven or eight hundred dollars. Who is the enterprising Frenchman that will run down to the old North State and do this good deed? for good it will be, for our Nurserymen in the end, tho' not yet. Our people must have time to learn.

W. H. HAMILTON,
Landscape Gardener,
Raleigh, N. C.

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Important to Cotton Planters!!

LANCASTER'S

COTTON SEED SOWER!

great Labor and Time Saving Machine.

Patented September 20th, 1859.

. machine to sow COTTON SEED has long
in wanted, and although several attempts have
in made to supply this want, they have all fail-
to answer the purpose. Without entering into
demerit of others, we desire to call the atten-
of COTTON GROWERS to a machine just
ened, the invention of a plain, practical farmer
Edgecombe county, N. C., which is destined to
no into general use, and finally supercede *hand*
ring altogether.
t is as simple in its construction as any ma-
ne can possibly be.
consists of a square wooden frame with a pair
shafts for a horse or mule, and a pair of han-
s to guide it, like a plough. It has an opener
making the furrow, behind which is a cylin-
having a groove turned around its face, in
ich groove are a series of pins which serve to
ry the Seed out of the hopper and they are de-
ited in the furrow made by the opener. Be-
d the cylinder, a cover is attached, which
es off the clods and covers the Seed at any
uired depth.
The cylinder is turned by the two wheels which
machine moves upon, thereby avoiding all
ds, cog-gearing and other attachments which
very objectionable in machines, worked and
naged by negroes. It is very light and easily
wn by one mule. The hopper, is large and
l hold over a bushel of seed, and it may be made
ger if required. It can be regulated to plant
m 1 to 4 bushels to an acre. A mule and hand
h one machine may plant at least 10 acres a
y. Bear in mind this machine opens, plants and
ers, all at one operation, and does it better
n can be done by hand.
The snbscribers made and sold last spring,
pril 1859,) one hundred and sixty of these ma-
nes, and a hnndred referees could be given if
essary.
To the large majority of purchasers they give
isfaction, and for the next season we shall make
h improvements in the machine as will place it
yond the power of any one to find fault with
operation. Last season was the first season
y were nsed to any extent, and *perfection* of
rse conld not be expected. But with the expe-
nce now of many practical faamers, we expect
furnish the machine perfect in all its parts, in
e time for the planting season of 1860.
As the demand will be large, we hope the or-
rs will be sent in early.
The Price is $15.00 Cash, or $16.00, Credit.
Orders from persons unknown to us, must be
ompanied with the money or draft, *and all*
h orders will take precedence.

Address
BORUM & M'CLEAN,
ARMERS' HEAD QUARTERS," NORFOLK,
VA.,
le and exclusive Manufacturers of Lancaster's
Cotton Seed Sower.

The following gentlemen used these cotton Seed Sowers last season and may be referred to:

FROM EDGECOMB.—Robt. R. Bridgers, Esq., J. L. Bridgers. Esq., Col B B Barron, D W Bullock, Esq., Geo W Whitfield, Esq., Jesse H Powell, Esq., A J M Whitehead, Esq., Hugh B Bryan, Esq., Henry S Lloyd, Esq., Tho. L Maner, Esq., B J Lancaster.

FROM WILSON.—James J Taylor, Robert Bynum, Wm Woodard, B H Bardin.

FROM HALIFAX.—E C M'Dowell, J L Lyon, Dr J J Powell, W H Day.

FROM MARTIN.—Arch'd Staton, Esq., Levi Howell, Esq., T C. Hyman.

FROM PITT.—P. A. Atkinson.

FROM WASHINGTON.—J S Norman, Esq.,

FROM HYDE.—S M Alexander.

FROM CHOWAN.—Jas C Johnson.

Norfolk, Virginia, December 17th, 1859.—17.

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January, 1860. 1—2t.

PROSPECTUS

OF THE

NORTH CAROLINA PLANTER,

FOR 1860.

JAMES M. JORDAN, AGRICULTURAL EDITOR.
JOHN W. WOODFIN, *ASSOCIATE AGRICULTURAL EDITOR.
S. W. WESTBROOK, EDITOR FRUIT DEPARTMENT.
W. H. HAMILTON, EDITOR OF GARDENING AND FLORAL DEPARTM'T.

The Publisher of the N. C. PLANTER, after two years of anxiety and labor, duing which he has endeavored to furnish the Agriculturists of North Carolina, with a reliable and valuable *home journal*, adapted especially and peculiarly to the soil, climate and products of our own State and the States adjoining, now presents them with his Prospectus for the third year.

He takes pleasure in calling attention to the Corps of Editors secured for 1860. They are all men capable of instructing their readers, both from scientific knowledge and practical experience, in the several departments over which they will preside; hence the readers of the North Carolina Planter will always be sure of a large supply of *original* matter, expressly appropriate to the various crops cultivated in our State, manner of cultivation, improving and renovating our soils—in a word every thing pertaining to the interest of North Carolinians engaged in the noble pursuits of husbandry, in the farm, garden, nursery and orchard.

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☞ We earnestly appeal to all friends of our Planter to aid in increasing its circulation. All Communications to be addressed to

A. M. GORMAN, Publisher,
Raleigh, N. C.

January, 1860.

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*Our Associate Editor we have procured from the Western portion of the State, so that every section may be represented in the Editorial departments, and thus have some portions of its pages especially adapted to the varied soils and climates of North Carolina. We have been very fortunate in securing the services of so able an Agriculturist as Mr. WOODFIN.

p630.5

FEBRUARY NUMBER, 1860.

NORTH CAROLINA PLANTER.

A MONTHLY

Southern Agricultural Journal:

DEVOTED TO

THE IMPROVEMENT OF SOUTHERN FARMING, HORTICULTURE, FLORICULTURE, AND THE DOMESTIC AND MECHANIC ARTS.

JAMES M. JORDAN, AGRICULTURAL EDITOR.
JOHN W. WOODFIN, OF BUNCOMBE, ASSOCIATE EDITOR.
S. W. WESTBROOK, HORTICULTURAL EDITOR.
W. H. HAMILTON, FLORICULTURAL EDITOR.

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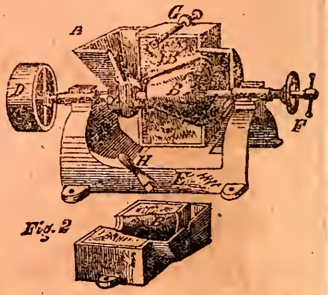

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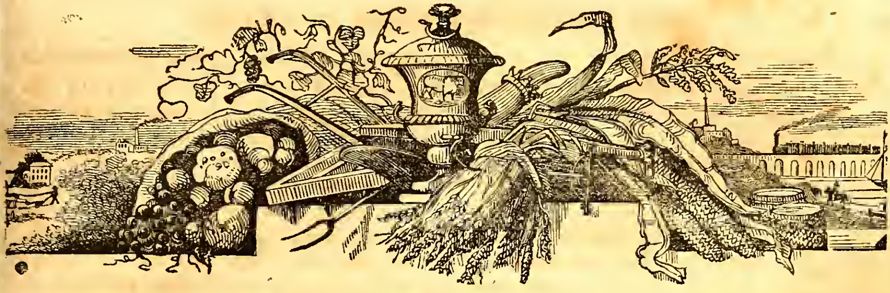

THE NORTH-CAROLINA PLANTER.

Devoted to Agriculture, Horticulture, and the Mechanic Arts.

Hœ tibi erunt artes.—Virgil. { "These are the pursuits to which you should direct your attention."

VOL. 3. RALEIGH, N. C., FEBRUARY, 1860. NO. 2.

To the Patrons of the Planter.

In the numbers immediately preceding this, we have given you ample directions for draining your land, published the views of Prof. Campbell on the Mechanical and Chemical Treatment of Soils, and we now add what the learned Professor says on the subject of fertilization, after which you will be better qualified to commence the cultivation of your crops.—Ed.

FERTILIZERS.

A fertilizer is any substance which, applied to a soil, will preserve or increase its productiveness.

From what has been said of the *origin* of soils, and of their proper *phisical* and *chemical* condition, we infer that they may demand fertilizers:

1. *From original infertility.* If the rocks* from which the soil is formed have not the required elements of fertility, they must be supplied from other sources, before the land can become productive. *Exs.* Granite soils generally require lime. Limestone soils are often deficient in potassa.

2. *From the presence of some substance unwholesome to crops.* We have seen that too much water is injurious. The remedy in such a case is draining. Organic acids we have also found to be injurous, when in excess, as is generally the case in swampy lands.

3. *From exhaustion by long-continued cultivation.* The reasons for this have been already given; and we have illustrations in all countries where the lands have been tilled for many years without proper application of manures.

4. *From too long application of the same fertilizer.* If a soil is deficient in only one or two of its proper elements, and these are supplied, its fertility may be at once restored. But if the application of these same substances *alone*, be made for several succesive years, they will be found in many cases to cease having their former influence, and will appear to prove injurous rather than beneficial. Such has been the case with many a field in the Valley of Virginia, under influence of oft-repeated applications of gypsum alone.

To understand the reason of this, we have only to remember, that, while we are applying one or two elements of fertility to the soil, we are taking away many others. Gypsum can supply lime and sulphuric acid, but it cannot supply potassa and phosphoric acid. By applying gypsum, then, year after year, we may accumulate a large excess of its own elements, while the soil is becoming poor from the exhaustion of something else equally necessary, such as potassa or phosphoric acid

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* By "rocks" we mean all solid mineral matter, which, by disintegration, helps to form soils.

Whether, then, we would enrich a barren waste, neutralize some unwholesome ingredient of the soil, restore exhausted lands, or supply neglected fertilizers, we must resort to the proper artificial means To do this intelligently requires some knowledge of the various fertilizers; their composition, mode of application, influence, etc.

Classification.—Fertilizers naturally form *two general classes*, worthy of note. (1) *Organic manures;* that is, such as have a vegetable or animal origin. Barnyard and stable manures, crops plowed down upon the soil, guano, etc. come under this class. (2) *Mineral manures* are such as are obtained from the earth, from water, or by burning out the organic matter of plants and animals. Gypsum, common salt, ashes, and bone-earth are examples of mineral manures.

We may with propriety subdivide organic manures into: (1) Those which, by their decay, produce chiefly *humus* Those we shall call "*humiferous.*"* (2) Those which, by their decay, produce much *ammonia*, we shall call "*ammoniferous.*"

Illustration.—When leaves, straw, and such like substances decay, the product is chiefly *humus;* hence, these are *humiferous.* When the flesh and urine of animals decay, they set free large quantities of ammonia; hence, these are *ammoniferous.*

Influence of Organic Manures.—They increase the supply of organic matter in the soil, and generally have a favorable influence on both, its mechanical and chemical condition. If the soil is a stiff clay, the particles of humus, mingling with the particles of clay, prevent their forming a cohesive mass. The soil being thus rendered more loose and porus, is more easily cultivated, absorbs and retains moisture better, and is more easily penetrated by the roots of plants The carbonic gas set free during the decay of humus, no doubt aids in rendering soils porus. The gas being liberated in all parts of the soil, as it is throughout a loaf of bread, becomes entangled among the particles, and forces them asunder. The increase of organic matter gives a darker color to the surface, and thus renders it *warmer* and *earlier.* This influence may be readily perceived, by observing how much more quickly corn, or other grain, germinates in those parts of a field where the soil is darkened with humus, than it does where the surface is lighter in color. In such places the crops generally starts more promptly, and at first grows more rapidly, but often fails to be as heavy in the end as that which started more slowly; because, while the soil is in a better physical condition, its chemical condition may, in some important particulars, be less favorable.

Organic manures improve the *chemical* condition of the soil, by keeping up the supply of humus, which becomes gradually exhausted by repeated tillage. The humiferous manures do this part; but it may, to a great extent, be accomplished by the roots and stubble left upon the ground.—The other class of organic manures—the ammoniferous—are still more important. Reasons have been already given for the rapid disappearance of ammonia from the soil. It is also true of all ammoniferous compounds, that they undergo spontaneous decay with great rapidity under the influence of air, moisture, and heat; and are, hence, not very *durable.* They must, therefore, be frequently applied. Then a supply of substances being essential to the vigorous growth of almost every valuable crop, we readily perceive their great value. In fact, the value of organic manures may be estimated chiefly by the quantity of ammonia they are capable of yielding.

Besides furnishing organic food in the form of carbonic gas, the acids of the humus combine with liberated ammonia in the soil, and prevent its escape ("fix it"). Such compounds, being soluble, are probably absorbed directly by the roots of the crop, and yield both carbon and nitregen compounds to the sap. These are afterwards elaborated in the leaf, and fitted to promote the subsequent growth of the plant. A proper admixture of humus, by fixing ammonia as it is generated, makes the influence of ammoniferous manures more durable than they would otherwise be.

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*So far as I know, these terms have not been employed before; but every student of Agricultural Chemistry will see, at once, that they are needed in our vocabulary, conveying ideas which could not be otherwise expressed without circumlocution.

The organic manures do more than simply supply organic food to crops They bring back much of the mineral matter which they have previously collected from the soil. They return this, too, in the from best adapted to meet the wants of the plants to be nourished; for they have already been subjected to the modifying influence of vitality in one set of plants, and will most probably require very slight changes to adapt them to another set.—Reasoning from analogy, we may conclude that plants take up most readily those substances having the form required in their new combination. The phosphates from the stable and the barn-yard are certainly in a better condition to nourish a crop of wheat or tobacco, than is the phosphate of lime in bone ashes.

FORMS OF HUMIFEROUS FERTILIZERS. *Dry*, undecayed vegetable substances, in the form of *straw cornstalks*, *forest leaves*, etc. are often plowed down into the soil. These gradually undergoing decay, produce a fresh supply of *humus*. From a little albuminous matter which they usually contain, a small portion of ammonia is also generated. The decay of such substances is slow, and hence an immediate effect is not to be expected; but the ultimate influence is always beneficial, unless there is already an excess of organic matter in the soil. If straw, leaves, etc., are thrown up in heaps (compost heaps) with other substances, such as the scrapings of stables and barn-yards, which will hasten their decomposition, and if allowed to lie in that condition until partial decay has taken place, their benefit to the soil will be more immediate. After the process of decay it will continue to go on rapidly in the soil; and there will be less loss from the escape of volatile matter, than if the decay is completed in the heap.

GREEN CROPS, plowed down into the soil upon which they have grown, make one of the cheapest, as well as most efficient, means of enriching land. They possess several advantages over dry substances of similar character. In the first place, they are already spread upon the soil, without the inconvenience of hauling. Secondly, they decay more quickly, and sooner become food for other crops. Thirdly, they contain a larger quantity of ammoniferous matter. The albuminous substances gradually diminish in the stalks and leaves of plants, as they approach their period of decay, or as their seeds ripen.

In this country, clover, grasses, buckwheat, peas, oats, and some other crops, are plowed down as green manure; but of all these, *clover* is probably the best, especially on limestone lands. Clover not only produces a good crop above the surface, but it produces one still more valuable beneath, in the form of roots. The large, fleshy roots of the clover, as they decay in the soil, yield both humus and ammonia, in considerable quantities. *Peas* are, perhaps, next in value.

The *increase* of organic matter added to the soil, by plowing down crops, comes, of course, from the air. Carbonic acid and water are taken in by the leaves and roots, and converted into vegetable tissues, which by their decay become *humus*; while ammonia, collected from the air, forms the albuminous parts of the plant, and these again generate ammonia in the soil. Such roots as run deep, like those of clover, bring up mineral matter from a considerable depth, and accumulate it near the surface, so that it becomes more available for the use of other crops. This is an advantage, arising from this process of manuring, not to be disregarded. Sub-soiling aids in this elevation of the mineral ingredients of the soil, by allowing the roots to descend to a greater depth.

There are some soils too light, or too far exhausted, to produce clover or grass, which will produce buckwheat or peas.—By planting down a few of such crops as these, the land may be greatly recruited, and many afterwards be treated with clover, if desired, in order to give it still greater fertility, or to keep it up to its improved condition.

PEAT (the half-decayed vegetable matter collected in swamps), when thrown up in heaps, and exposed to the air for some time —when mixed with lime or ashes, and applied to the soil, is a valuable source of humus; and when dried and thrown into stables and barn-yards, it forms one of the best means of absorbing the liquid parts of animal manures, and of fixing their ammonia. The *spent-bark* of tanneries, the scrapings of wood-yards, and the *muck* formed in forests by the decay of leaves, may all be treated in the same way. *Charcoal* and *soot* (finely-divided carbon) improve the physical dondition of clay soils.

A Powerful Fertilizer.—A combination of salt and slaked lime. The salt should be mixed with the lime in such quantity as to allow from 100 to 300 lbs. to be laid upon each acre. A mixture of 600 lbs. of quick lime with two hundred pounds of common salt, forms a powerful dressing for an acre of wheat, Indian corn, &c., and also affords considerable benefit to the after crops of clover and oats. Will some of our planters try the experiment this year and report the result?—Ed.

The Proper Application of Manure.—There is a difference of opinion among scientific men, in regard to the proper application of fertilizers to the soil.—Some contend that they should be spread and ploughed in, whilst others hold the opinion that spreading manure upon the surface, and leaving it exposed for some time before covering it in, is the best plan. A learned prefessor, Legnitz, had recourse to the following experiment for the solution of the problem. He selected 2½ rods, which he divided into four equal parts.—To No. 1 no manure was applied. No. 2 received two tons of farm-yard dung, which was spread immediately, and ploughed in. No. 3 received the same quantity and quality, which was spread and covered in with the hoe instead of the plough. The same qualtity and like manure was applied to No. 4, and allowed to remain spread on the surface several weeks before it was covered in. In October the four lots were sown with 95 pints of rye, each. The following is the result of the crop of each lot, grain and straw included;

No. 1	produced	..............583 lbs.
No. 2	"	..............770 "
No. 3	"	..............818 "
No. 4	"	..............835 "

The truth of the pudding is in chewing the bag, and the pudding of this experiment, is the largest yield in favor of the surface application of manures. The objections to spreading manures on the surface, and suffering them to remain in that situation for months, have been the supposed loss of ammonia. These objections, urged by the ignorant, are being removed by the light of science and the aid of ex-experience. The odor given off from the fermentation of manures, is no indication of the quantity of ammonia liberated.—Farmers who bury their manures bury their labor and their prospects of a good crop. No improvement of the land results from such a disposition of fertilizing agents. The old system of cultivating and manuring has exhausted the land, the improved, or new system, when adopted will renovate it. Subscribe to the Planter and try it.—Ed:

Cotton.

The following remarks on the planting and culture of cotton are compiled chiefly from the "Cotton Planter's Manual." (J. A. Turner.) All the leading points to be observed in the management of this grand Southern crop are believed to be here presented. Modifications, of course, must be made to suit differences in soil, climate, &c. Those who wish to investigate the subject fully are referred to the valuable "Manual" above mentioned, and to Southern Agricultural Journals.

Kind of Soil.—"The first inquiry which presents itself is, to know what are the peculiarities of those soils which suit the growth and maturity of cotton. Experience is, perhaps, the safest and most reliable test, in the settlement of this question—and it is now pretty universally conceded, that our best cotton lands are those which are of deep and soft mould, a sort of medium between the sandy and spongy, and those soils which are hard and close—those which are penetrated by the warming rays of the sun, imbibing readily the stimulating gases of the atmosphere, and which allow the excess of rain-water to settle deep into the earth, as to lie at a harmless distance below the roots of the young plant. These are the properties of soil, needful to the vigorous growth and early maturity of the cotton plant; and the knowledge of this fact is of great, and perhaps I might add, indispensable importance, to its successful cultivation. For though we may not find, and indeed it is very improbable that we should often find, all these essentials in the selection of a farm, yet by the aid of the plow, the hoe, and the spade, and the incorporation of foreign substances, we may remedy many defects, add supply many of the peculiar demands of this plant.

PREPARATION OF SOIL.—"The best and most important part of the work in cotton making, consists in a judicious and proper preparation of the soil for planting. It is difficult to say, in all cases, and in the varied condition in which lands are found, and the diversity of soils, what the process of preparation should be; but we lay down general principles for our government, and results to be obtained, and leave the planters to the selection of the best means at command for their accomplishment. All lands for cotton ought, before the crop is planted, to be broken deep, close, and soft; and this to be done long enough before planting to allow the rains gently to settle them. It is the most common and perhaps the best plan, to prepare all lands intended for cotton, in beds made by the turning-plow; and in flat and wet lands, sometimes an additional elevation ought to be given, by drawing up the beds with the hoe. I think, in this work, we have often followed too much the example of our neighbor; and have looked too little to reason, in the indiscriminate bedding and high elevation of all lands. I am the advocate of deep, soft beds, made by very thorough and close plowing, but cannot consent to the necessity or benefit of elevating such lands which are warm and dry, and which are not subject to inundations from excessive rains. For the convenience of culture, I would have the young cotton stand on a slight elevation; but when the condition of the land did not require it, I would not give it more."—*Col. Chambers's Essay*, pp. 11–13.)

MANURES.—"Every kind of compost, green crops turned in, cotton seed, and even naked leaves listed and left to rot, improve this crop. When planted on cotton-seed, and sometimes on strong stable manure, it is more difficult to retain a stand, owing, probably, to the over stimulus of these strong manures. So, on leaves, unless well-rotted, the cotton will long continue to die, in consequence of the leaves decaying away, and exposing the root too much to sun and rain. These difficulties may be avoided by a little pains; and by no means justify the opinion entertained by some, the cotton should never be planted on freshly manured land. The only question is the cost of the manure.—A great deal may be made on every plantation, without much trouble or expense, by keeping the stables and stable yard, hog and cow-pens, well supplied with leaves and straw; and also from pens of corn cobs, sweepings from negro and fowl-house yards, and rank weeds that spring up about them, and collected together, and left to rot. Whenever the business is carried further, and a regular force is detached to make manure at all seasons, and entirely left out from the crop, it becomes the owner to enter into a close calculation of the cost and profits. In many agricultural operations, such a course the experience of all countries have proved to be profitable; but these operations partake more of the farming and gardening, than planting character; and whether the same method will do for the extensive planting of short staple cotton, remains, in the opinion of your Committee, yet to be tested. If anything like an average of past prices can be maintained, it is certain that more can be made by planting largely than by making manure as a crop. If, however, prices continue to fall, and the growing of cotton be confined to a few rich spots—those susceptible of high manuring—then our whole system must be changed, our crops must be curtailed, and staple labor losing its past value, the comparative value of a cotton and manure crop will preponderate in favor of the latter. As a substitute for manuring on a large scale, resting and rotation of crops is resorted to. In our right level land, the practice of resting cannot be too highly recommended; and, by a judicious course, such as resting two, and planting two, or at most three years, our lands may not only be kept up forever, but absolutely improved. From rotation of crops, but little is done for Cotton.—After small grain—whether from the exhausting nature of that crop, on light lands, or because the stubble keeps the ground rough and porous—cotton will not do well. After corn it is difficult to tend, as, from our usual manner of cultivating corn, grass is always left in full possession of the field. It does best after cotton, or after a year's rest. Rest is the grand restorer, and the rotation chiefly required in the cultivation of cotton."—*Gov. Hammond's Report*, p. 27.

Application of Manures.—Dr. Cloud, after various experiments, says: "I determined in spreading all the manure used broadcast. This was done by hauling the manure out on the land, and depositing it in heap rows, say thirty feet apart, and the rows, with ten bushels of nanure in each heap. The cotton-rows being first laid, the manure was spread broadcast, and the land bedded out. On or about the 10th of April, the cotton-seeds were planted after a spacer, by which the hills are regulated precisely as desired. The result was a perfect stand, with the cotton healthy, and all of the same age. There is no difficulty in understanding the difference here in favor of broadcasting the manure, and in bedding out the rows. It is not deposited a half-gallon in a place, but is incorporated evenly throughout all the soil. The consequence is, that however rich the manure may be in alkaline matter, its thorough incorporation with the soil, so quickly and effectually dilutes it, as to render it entirely innoxious to young cotton. There was no part of the experiment that gave me so much satisfaction as this.—Every planter knows the value of a first uniform and perfect stand. I use the term perfect, because, by the use of the spacer, I approximate nearer a perfect stand than it is possible to accomplish by any other process."—*Dr. Cloud's Experiments*, p. 72.

Planting.—"The *distance* to be given is the next inquiry to be considerered. This is a very important object, and one upon which we are very dependant for success; and yet it must be varied very much by circumstances, some of which are beyond our knowledge or control. The general principal may be stated, and then our best judgment must guide us in its application.

"When the crop is at maturity, the branches of the stalks ought slightly to interlock every way. We cannot, therefore, do better in planting, than make an estimate of the probable average to which the weed will grow, dependent, of course, upon the vicissitudes of the seasons. It would, therefore, be vain to attempt to be more specific in directions, which must be varied always to suit the varied character of the soil. This whole question, then, is to be settled upon the principle already stated. The planting should be in drills, chiefly because of the difficulty of obtaining good stands in hills; and I would add, for the information of those who may be without experience, that in the common medium lands of the country, these rows ought ordinarily to to be about five feet apart, and the stalks in the drill should be thinned, so as to stand from fifteen to twenty inches from each other. The width of the rows, and the distance in the drill, may be increased upon better lands; in some cases of very thin lands, it may fall a little below the distance designated.—I do not regard it as a matter of indispensable importance, but should decidedly prefer that the rows should run in such direction as to give the plant the largest benefit of the sun, from early morn to its setting. The cotton is decidedly a sun plant.

In the March number we shall continue the subject, and give directions for planting, culture, selection of seed, picking and packing; which will be in time for the ensuing crop.—Ed.

Orange Fritters.—One pound and a quarter of flour, four eggs, and a pint and a half of milk. Beat the yolks very light, and add the milk; then after whisking the whites, stir them into it. Then take two oranges, pare them, remove the white skin, take out the seeds, cut them in thin slices, cover each slice with a spoonful of butter, and drop into hot card. Fry to a brown and serve with butter and sugar.

Deborah's Batter Pudding.—Sixteen table-spoonsful of flour, one quart of milk, six eggs, salt; beat the eggs to a froth on a plate, and after it is mixed beat it fifteen minutes. Either boil or bake.

Indian Corn (Maze.)

Preparation of Soil.—Principles have already been given, which were designed to be of general application in reducing soils to their proper mechanical and chemical condition. A few special directions on this subject may be useful, as applicable to the culture of particular crops.

The most important point is the preparation of land for corn is *deep, thorough plowing.* For this, more than for any of our grain crops, the sub soil plow is demanded—preceded by draining, where this is necessary. Corn roots run deep enough to avail themselves of the benefit of all the soil which the plow can break. The earing season of corn, too, is a period of frequent droughts, but we have shown that draining and sub-soiling are the best safeguards against such contingencies.

The time of plowing should be determined by the quality and condition of the soil. The winter frosts are of great service to stiff clay and slaty soils; hence, the advantage of plowing them in Autumn or early Winter. When the field is covered with a clover sod, or grass, which is easily killed, or with litter easily rotted, it is considered a good plan to break up with the surface plow alone, in the Fall or Winter, so as to cover the sod or litter, and let it lie in that condition until near planting time. It will then be sufficiently rotted to become readily mingled with the soil. The same plow should be again used, and be followed by subsoiling. The decayed sod and litter will, during this second plowing, be partly turned up to the surface, and partly mingled with the surface soil, giving it both a warm and mellow character; while the subsoil plow will open the way for the roots to run far down in their search for food and drink.

There are some grasses which are not easily killed with the plow, and which form a very tenacious sod. The varieties of blue grass, common on limestone lands, are of this character. A favorite method of treating such a sod, when broken up for corn, is to turn it down during the Winter, or very early in the Spring, and at planting-time, run the harrow or cultivator over the top, so as not to disturb the sod, but leaveit with its grassy surface still more completely concealed, and pressed down upon the bottom of the furrow. The rows for planting are then opened by a small bar-share plow, run so shallow as not to turn up the sod, but only to cut through the upturned part of it. The corn is thus planted in the inverted sod. The early culture is shallow, still not breaking the sod to any considerable extent. Such preparation, when accompained by sub-soiling, is almost certain to produce a good crop. The advantage of leaving the sod so long undisturbed, is, that it may have time for complete decay, and thus become food for the crop at the period of its most rapid growth. Alluvial, and all loose soils containing much organic matter, need not be broken until near the time for planting. Weeds and grass will not then have an opportunity of commencing their growth much in advance of the corn. Soils cannot often be made too mellow for corn, nor be kept too mellow during its growth.

The *distance* apart at which corn should be planted, should vary with the richness and physical properties of the soil. A very fertile soil can, of course, sustain a greater number of stalks than one which does not equal it in strength. But of two soils, both equally fertile, the one of stiff clay and the other of dark loam, the latter will bear closer planting than the former, because it absorbs more freely the light and heat of the sun.

Yet, in every case, there is a limit to the number of stalks yet to be left upon the ground; and young farmers are more apt to err in having their corn too thick, than in having it too thin. The crop demands more than simply an abundance of nutrition from the soil; it demands a full supply of both *light and heat,* with free circulation of air. Corn, more than any other grain crop, is injured by being so much crowded as to exclude the free access of light and heat from the sun, or prevent ready circulation of air.

Modes of Planting.—These are the two modes of planting practiced by the best farmers, both of which have their advantages under peculiar circumstances.—By one of these modes, the ground to be planted and marked off with furrows all running in the same direction, and parallel to one another, and at the proper distances apart for the proper rows. If the land is level, or nearly so, the rows are generally made straight; but if the land is hilly, they are made to wind around the spaces of the hills, in such a way as to be nearly horizontal. The width of the spaces between the rows varies from three and a half to five feet. The corn is then dropped into the furows, at from one to three feet apart, and covered with the hoe or plow to a depth which should not exceed two inches, unless the soil is very dry. When the hills are so near as one foot, only one stalk should be left in each hill; and even then there will be too many stalks in the rows for any but the best lands. If the hills are two and a half or three feet apart in the rows, two stalks may be allowed to grow together. The only advantages arising from having the hills wide enough apart for two stalks, are the greater convenience in hoeing, and the more free access of light and heat to the soil. But, for the absorption of food from the soil, there is some advantage in having the plants equally distributed in the rows, each standing alone.

The other mone of planting differs from this, in the method of arranging the rows. The land is laid off in two directions, at right angles to each other, so that one set of furrows run lengthwise, and another set run across the field, dividing the whole into little squares. At the corners of these, where the furrows cross each other, the corn is planted. The rows must be wide enough for the plow to be conveniently run both along and across the field. In the large varieties of corn, which are almost exclusively cultivated in the Southern States, two stalks are as many as will grow to full vigor in one hill.

The principal advantages of this method are: 1 That the quantity to be cultivated on the field may be perfectly regulated by the width of the rows. Each square, formed by the intersections of the rows, will correspond with the space occupied by each hill of corn; or, in other words, there will be just as many corn-hills in the field as there are squares marked off by the rows, provided we reckon the margins along the fences as divided into half-squares. If, then, the rows are three feet apart each way, there will be two stalks (or corn-hill) for every square yard of surface. If the land is tilled to the depth of a foot, each corn-hill will have the third of a cubic yard (equal to nine cubic feet) of soil to sustain it. When the soil is light, the number of stalks may be regulated to suit it, either by thinning to one stalk in each hill, or by increasing the distance between the rows, and leaving two stalks in the hills. 2 The plowing may be made more complete in the future culture of the crop, when there are two systems of rows crossing at right angles. Two successive plowings may be made to cross in the same way, and thus the soil is broken on all sides of the hills. The stirring of the soil is thus very complete and the grass and weeds are more thoroughly eradicated than they can be by the plow running only in one direction. 3 The sun has free admission to the soil. This method cannot be coveniently practised on steep land.

Quantity of Seed.—Each hill should have two or three times as many grains as there are stalks to be left growing. By this means, if the seed has been carefully selected and kept in a dry place, and the ground is in a good condition, the trouble of re-plantig may be avoided. Another great advantage arising from an abundant application of seed is, that however perfect the grains may seem to be when planted, some will produce vigorous and healthful plants, while a few, at least, will produce only such as are feeble and sickly, and can never by any subsequent culture be made vigorous and productive. Five or six grains in a hill will almost always secure enough of the best quality to be left, while these of less promise may be pulled out. The trouble of thinning out in this case, will be amply rewarded in the future crop.

Corn is often planted by machines constructed for the purpose. These should be so made that the distance between the hills, and the quantity of seed dropped, can be regulated to suit the soil.

Experiments.—Every farmer should test the capacity of the different parts of his land for corn, by actual experiment. He should on different parts of the same quality of soil, try the cultivation of *one*, of *one and a half*, of *two*, and of *two and a half* stalks for every square yard of surface, until he finds out the number best suited to that soil. He will then know how thick to plant his corn on different parts of his farm, and will establish rules for himself far superior to any he can find in books.

Tobacco.

This important Southern crop is becoming more and more widely cultivated, and the prospect of continued high prices is inducing many of our farmers to turn their attention to its culture, in portions of Virginia and other States, both north and south of us, where, in former times, people have grown up to manhood without ever having seen a growing crop of tobacco. While so many new hands are thus engaging in its culture, it becomes important to have the leading points and principles involved in its management collected and set forth in a concise, systematic, and accessible form. The following discussion of this subject is the result, first, of the writer's personal observations of the methods pursued by some of the most successful planters in Virginia and Kentucky; secondly, of information gathered from those familiar with the business; and thirdly, of gleanings from books and agricultural journals—especially the "Southern Planter."

CLIMATE.—Tobacco requires a long summer season to bring it to muturity. Hence, so far as our own country is concerned, the *best* tobacco can be cultivated only in the Southern States. *Elevation* has an influence somewhat similar to increase of latitude, not in the varying length of days, but in the lateness of Spring, and the early appearance of the cool nights and frosts of Autumn. This makes the culture of tobacco uncertain in the high and mountainous parts of Western Virginia, while a like risk is not felt in the same latitude further east, where the elevation is not so great.

A variety, called the "Connecticut Sead-leaf," is beginning to be cultivated in considerable quantities in New England, and at present commands a good price. It requires a shorter season than the kinds cultivated farther south.

SOIL.—Tobacco will grow upon almost any good soil, when prepared by thorough tillage, but that best adapted to its culture is a rich, dry loam, newly cleared and brought under cultivation. Although the light clay, and sand loams, well manured, are the most reliable for making the finest qualities of tobacco, yet the clay soils—even the stiff clays of the limestone formation of the Valley of Virginia—produce excellent crops, but they may require free applications of rich organic manures to render them sufficiently porus. The sandy loam, which has been drifted down from the mountain-gorges, along the northwest side of the valley, is well adapted to the growth of tobacco.

VARIETIES.—"Owing to the great diversity of climate and soil in Virginia, a corresponding change is produced in the grades of tobacco raised throughout the State, yet she produces more valuable tobacco than any other State in the Union. The Orinoko and the Prior for manufacturing, and the White Stem and Big Frederick for shipping, both in strips and stems, are the most profitable to the planter to the various kinds raised. Having had twenty years' experience in cultivating and manufacturing, and the last five years in selling the article, I am clearly of the opinion that, on the lands suitable, the Orinoko is decidedly preferable for manufacturing, from the fact that it is the only kind that is sweet by nature, if ripe. It should be sun-cured, or as much so as the season and circumstances will admit. If thoroughly ripe it is much easier to be cured of the right color, (I know of no object in nature that is nearer that color than the land-terrapin, which doubtless, is familiar to every planter,) and it stands manfacturing better. If cut before being ripe, it chews bitter, its color is forced, and it will not hold it. The Prior is a good kind to cultivate on all mountainous lands, as it stands the wind better than any other kind, being tough. For shipping purposes, I give the preference to the White Stem. It can be grown large and rich, is smooth and tough when cured, and loses less weight in the curing than any other kind."—*W. H. Brown*, "*Southern Planter*," Jan., 1854.

PLANT-BEDS.—The climate, the soil, and the variety to be cultivated, being all favorably determined, the first and one of the most important ends to be attained, in order to insure success, is to secure an *abundance of good plants*. To do this, the planter must look well to the preparation of his plant-beds. Of these he should have several, sown at different periods, or one very large one, divided into several parts, to be sown at different times. He will thus secure a succession of plants, and can then avail himself of the most favorable season for "planting out.' The condition of weather for the germination and growth may be very unfavorable after the planting of bed, but more favorable for one planted earlier of later. To meet all the contingencies that may arise, and still secure an abundance of plants, enough of ground should be sown to produce (if all portions do well,) a large excess over what the crop to be raised will require.

PREPARATION OF BEDS.—The general practice is to burn the surface of the beds before planting. A warm and dry locality, exposed to the sun, and well protected against cold winds, is most suitable. A southern cr south-eastern exposure should be selected, if possible, having a loose, rich soil. It should be well cleared of roots, stones, and every thing that might interfere with a proper tillage of the surface, or with the subsequent growth of the young plants. The burning process is then conducted by covering the bed entirely, or in part, with brush or logs previously collected, and igniting them at a time when they are dry enough to burn freely. The fuel should not be allowed to lie flat upon the ground when burning, but should be sustained upon cross logs placed beneath it. The whole bed need not be covered with fuel at one time; because, when one portion has been subjected to the fire for an hour or two, the burning fuel may be removed to another portion, and thus the several parts be burnt in succession. Some important effects are produced by this roasting process. In the first place, any seeds of grass, weeds, &c., which may be in the soil, ready to spring up with the plants, are entirely or partially destroyed; and secondly, the condition of the soil is improved by burning, and by the quantity of ashes left upon it. Beds should generally be burnt just before they are sown; though, in some soils, it is better to burn and expose to frost a few weeks before planting. As soon as the surface is cool, *guano*, or some finely pulverized manure *rich in ammonia*, and *clear of seeds of every kind*, should be freely applied, and the surface then be finely chopped up with the hoe, and smoothly raked. It will then be ready for the seed. "About two table spoonsful of seed for every 100 square yards will be sufficient, and not too much. The seed are mixed with old ashes, and, to sow them regularly, it is best to sow one half over the bed, and the other half across the first sowing. It is then trodden, and thickly covered with brush."* The object of the covering with brush is to protect the young and tender plants against frost and sudden changes of weather, and at the same time to admit the air, and the light heat of the sun. The covering is removed when there is no danger of frost. One bed, at least, should be sown during the winter, and other betimes in the spring, so as to multiply the chances for an early supply of plants. Then, for later plants, another sowing should be made at a more advanced period in the spring.

Plants have been successfully grown by the application of guano abundantly, without the labor and expense of burning.—(*See "Journal V. S. Agricultural Society,"* Vol. II., pp. 60, 70.)

The fly is the great enemy of plant-beds. Various remedies have been tried for this evil, but none, perhaps, have succeed better than the sprinkling of dry, fresh ashes, or newly-slacked lime, over the leaves of the young plants, by means of a sieve, or with the hand, as soon as the fly begins its depredations.

An occasional application of guano and plaster, during the growth of the young plants, has the effect generally of pushing them forward, so that they spring up rapidly in spite of the fly.

All weeds and grass should be pulled out of plant-beds as soon as they begin to make their appearance. To render the process of weeding convenient, and also to facilitate the drawing of plants, the beds are frequently divided into smaller secondary beds, four or five feet wide, with narrow walks between them.

PREPARATION OF SOIL.—This is a point of the very first importance in making a crop of tobacco. The soil must be both *rich and mellow*. If the land is *newly cleared*, all the undergrowth must be well grubbed out, and everything be burnt upon the land, or removed from the surface, which would impede the culture of the crop. This should be followed by two or three thorough coulterings, with strong teams, so as to break up as completely as possible all roots left in the soil. Hands should follow the coulter to cut out and remove all the broken and exposed roots. The soil should be thoroughly plowed, and then listed and hilled in the best way, which the number of stumps present, and the general character of the surface will permit. Sometimes the hilling has to be done altogether with hoes, on account of the steepness or roughness of the ground. Such is often the case on the steep lands of those counties lying along the base of the Blue Ridge, and in many other places. At other times the soil may be first thrown up into beds or lists, and these be divided into hills with the hoes.

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*W. H. Jones, "Southern Planter," November, 1854.

New lauds is generally the best for tobacco But in the best tobacco growing sections, the land is nearly all cleared, except so much as is required to be kept in timber for fencing and fuel. The preparation of *old land* is here the matter of most importance. The point to be attained is to get a rich soil, deep and well pulverized. Tobacco requires an abundant supply of ammonia, as well as mineral matter, especially lime and potassa, with phosphoric and sulphuric acids. Hence, guano and rich stable or hog-pen manures, lime, ashes, plaster, and the phosphates, are all valuable fertilizers for this crop, unless they are already present abundantly in the soil. It has been shown that ammonia is not generally abundant in soils that have been frequently cultivated without manure; hence, old land usually requires an application of some form of ammoniferous manure, to secure a full crop of tobacco. A good clover or pea fallow may be plowed down in the Fall, and manured well and re-plowed in the Spring, with sub-soiling, where the land requires it; then, if necessary, in order to get it fully pulverized, let it be stirred with shovel-plows, and well harrowed. This will mingle the manure thoroughly with the soil, as well as reduce the soil itself to the desired condition. If manure is not abundant, some guano should be mixed with it, and a smaller quantity will then answer the purpose. All *wet* lands must be *well drained* for tobacco.

(*To be Continued.*)

Surface Manuring.

"Who layeth on dung ere he layeth on plow
Such husbandry useth as thrift doth allow:
One month ere ye spread it, so still let it stand,
Ever to plow it ye take it in hand."

[*Tusser's February Husbandrie.*

Professor Voelcker, of the Agricultural College of Cirencester, in England, has recently advised the application of manure to the soil, as a top dressing, in all cases where it is practicable. He proves, very satisfactorily to our minds, that the manure loses but little ammonia by this mode of treatment—less than by the ordinary plan of piling up and heaping it, and much less than the value of the labour employed to handle it as much as it is often recommended it should be.

The reasonings by which Professor Voelcker supports his position are scientfic, and we shall publish them in full when we can get sight of the Jourdal of Transactions of the Royal Agricultural Society, in which his Essay is contained. Meanwhile, we have only to say that there is nothing new in the practice advised, and everything to commend it in the experience of those who have tried it. It is only the plan of what is called surface manuring, and is at least as old as the earliest "Book of Husbandrie," Tusser.

Sveeral years ago, one of the most observant farmers we ever knew, as well as one of the most judicious, pointed out to us the error of ploughing up cowpens as soon as the pen was moved. He had observed that the land was better for a number of years where the surface was left undisturbed. We have often noticed the fact since in that gentleman's practice, in our own, and in other cases In his case especially, we remember that his cow pens, trod perfectly bare always, covered themselves with the richest sod of Kentucky blue grass—which, by the way, is the June grass, Poa Angustifolia, and not the Poa Compressa, Mr. Cassius M. Clay to the contrary notwithstanding—in two or three years without any seeding. Here was a successful application of Prof, Voelcker's theory, which we will show to any gentleman who will go with us to Albemarle in Winter or Summer. As the land was perfectly bare, and manured only with dung and urine, there was no mulch in this case.

Having heard from the grazlers of Loudon and Fauquier, and other sections, that their lands were enriched by feeding straw in the fields to thetr cattle, we determined to try it, and selecting the poorest and naturally the thinnest piece of land at Shadwell, a pretty bare hill-side with some healed up gullies in it, we fed cattle there one Winter with straw and corn-stalks. That land improved faster than any other piece of land we ever manured, its condition being considered.

The farmers of the South Branch of Potomac, who send the brag beef of Virginia to market, feed them in two pens with the corn upon the stalk unshucked. They feed them in one pen to-day and the other to-morrow; their hogs alternating in the same way, after their cattle, to consume the undigested corn in their dung. Their lands are probably equal to any in the State.

The farmers of Southwestern Virginia do the same thing.

The largest wheat and tobacco grower in Halifax county, we learn, does not even manure his tobacco lots in the same way, but he puts the straw and stalks on the land and runs the cattle over them. And his nett profits for the amount of surface tilled are the largest we know.

Several years ago Mr. Edmund Ruffin, in an elaborate Essay in the Southern Planter, recommended the application of all manure as a top dressing to clover. He attributed much of the fertility of his land to that circumstance, and he had been practising it for a number of years, and does so still.

So do the best farmers on lower James River, such as Mr. R. M. Taylor, Mr. Ro. Douthat, Mr. Selden, and Mr. Carter. And their lands, though hard grazed, are improving every year.

We have by no means exhausted the panel of practical farmers known to us, whom we could name: but we proceed to give authority from the books. The best practical writer we know on Agriculture is Von Thaer. In his "Principles of Agriculture," p. 211, Skinner's edition, he says: "There are visible advantrges attending the spreading upon the land of fresh straw manure, and to leave it till the plowings of Spring commence. * *

" this method of covering the soil during winter renders it much more friable and remarkably fertile. I have often seen the washed, but not rotten, straw thus left on the ground, removed to form fresh litter; and nevertheless, the soil from which this straw has been collected appeared as perfectly manured as if all the straw had been decomposed. * * * * * *

I have so often seen the good effect of long or short dung thus spread over beans and peas, and left there during their growth, upon that light soil, and I have no doubt of the advantages on these two crops, particularly if they have been late sowed. But what is still more remarkable and difficult to explain, is that the following crops on land treated in this manner are also superior to those on which a larger amount of decomposed manure has been plowed in."

He then goes on to give instance of his observation and experience, and adds: " The strong smell occasioned by spreading manure leads to the opinion that the evaperation from it must be very considerable; but when we consider that a few grains of musk will for years continue to perfume the atmosphere surrounding it, without sensibly diminishing its weight, it is permited us to doubt whether the juices evaporated from the manure are very considhrable; and if I may believe my own experience it does not diminish its weight." * * (On this point Prof. Voelcker proves Von Thaer's conjecture to be perfectly right.)

" It appears, therefore that there is no solid ground for objection to leaving the manure uncovered on the ground for some time."

Again he says, p. 224: " The soil is usually plowed before the sheep are folded on it; and as soon as the folding has taken place they hasten to bury the manure thus deposited on the ground, by a superficial plowing. Although this proceeding is universally adopted, I have had my doubts as to the eligibility of it, since I have learned of several experiments being made by agricultural friends of mine, who assert that they have seen the most beneficial effects resulting from folding —cowpening—when the manure was suffered to remain on the surface of the soil for a considerable period."

Here then is a brief statement of the practice of the best farmers and of the best farmed districts of Virginia, and of the best farmer-author who probably ever lived in continental Europe, adopted in some cases before Prof. Voelcker war born, and in others by people who never heard of him until recently. His explanation of the fret is a mastorly one; and we thank him for a scientific proof of the correctness of a long established practice, and for affording the best example we know of the concurrence of science in Agriculture.

We wish we had more chemists like Prof. Voelcker. Too many people have ignorantly upbraided chemistry with following in the wake of practice instead of directing it; and too many chemists have accepted the issue. But if science is built on induction, how can it be otherwise than behind the facts? Its business is to deal with facts. If it anticipates them it is no longer science, but vain speculation. We have had a touch of that in Liebig's mineral theory, which we believe is now upheld only by that slowly progressing primary Prof. Mapes.

Southern Plaater.

The man who did not think it respectable to bring up his children to work, has just heard from his three sons. One of them was driver on the canal, another has been taken up as a vagrant, and the third has gone to a public institution to learn the shoe busines under a keeper.

From the Rural Register.

On the Culture of Wheat—The Necessity of Phosphates.

The lamented Professor Norton, shortly before his decease, delivered an address before the Senaca (N. Y.) County Agricultural Society , which we find in the Transactions of the State Society—from this address we made the following extracts, upon the culture of the Wheat plant:—

" This is a wheat country, and it is of much importance that the yield of that crop be increased, in place of continuing to decrease, as it has certainly done on many farms. I think that some light may be thrown on the cause of this decrease, and on the nature of the crop, by a brief account of the wheat plant in regard to the structure of its several parts, and their chemical composition, finally bringing the information thus collected to a practical bearing upon various questions connected with its cultivation. It will be seen that there is a very great number of points to which attention may profitably be directed. These will, in the present case, be impressed by the great value of this crop to our country generally. I will first devote a few words to the structure of the plant. and of its various parts.

" That part to which our attention is first naturally directed, is the seed. Viewed externally, this is merely a small brownish or whitish oblong mass, presenting a white interior when broken. If kept perfectly dry it will remain unchanged for a thousand years; but when exposed to moisture and warmth, a change speedily occurs. The seed swells and soon opens its outer covering to permit the root and stem to shoot forth.—This is all very simple in description, but it is only after years of study that we have arrived at even an imperfect knowledge of what really takes place at this time. I do not purpose to go at length into a scientific account of germination, but will mention in few words the changes that occur. The seed in its natural state contains a dry white substance, which is for the greater part insoluble in water; this is mostly starch. Now the young shoot, until it reaches above the surface of the earth, and until its leaves begin to expand, must draw its nourishment from the seed, but since the principal part of the seed is insoluble, how is this done?—It is found that at the time of germination, a substance called diastase is formed, which has the power of rapidly converting the starch into a species of sugar, or a species of gum. Both of these are soluble in water, and consequently go immediately to nourish the young plant. Now this change will not take place properly, save under certain conditions. The soil must be moist, and not very cold, and the seed must be buried at such a depth as to be accessible to air. If there is no communication with the air, the seed will not germinate, even though the earth be warm and moist. Without air, the change by means of diastase, of the starch into sugar or gum, will not occur. This fact is often illustrated when we bring up earth from a distance beneath the surface, if thrown upon one side in the middle of a grass or grain field for instance, it will soon be seen covered with plants, and these in many cases entirely different from any growing in the immediate neighborhood. There seems no way in which we can explain many curious occurrences of of this kind, except upon the supposition that these seeds may have lain in the ground buried deep, and consequently only grew when brought near the surface; warmth, air and moisture are thus seen to be necessary adjuncts to successful germination; but if we bring the seed immediately upon the surface, even under these conditions, it will not grow, thus showing a fourth requisite—the absence of light. Unless the position of the seed is such as to ensure all four of these conditions, it will not produce a healthy plant, and usually will not grow at all. This explains to us why so small portion of the seed sown ever comes to anything.

" It has been shown by some authors from actual counting of the seed in a bushel of wheat, and by comparison with the yield obtained when a given quantity is sown, that when the greatest crops known are obtained little more than half the seed sown vegetates In the case of ordinary crops, the produce is not more than ought to be afforded by about one-third of the seed sown; the remaining two-thirds are lost, some buried too deep, some not covered at all, some destroyed by insects. One great advantage of the drill machine for sowing is, that the seeds are all deposited at an equal depth, and at an equal distance apart; the growth is consequently regular, and the plants are much less liable to be luxuriant, in some spots, and scanty in others, Covering with the cultivator or gang plow, produces something of the same effect. A considerably reduced quantity of seed will thus answer the same purpose, as none of it is lost. The saving of half a bushel or a bushel of wheat per acre becomes of immense importance when we consider the number of acres sown in any one year.

" When the young shoot has reached the surface of the ground, and has begun to expand its leaves, it is not longer dependent for food on the parent seed. Its roots have by this time begun to collect food from the earth, and there is a constant flow of sap upward through them. In good soils these roots will go down for several feet, and of course in penetrating so great a distance are m more able to draw abundant supplies for the plant; this shows the importance of artificially deepening the soil, when the subsoil is not naturally mellow, and of draining when this portion is constantly filled with water. In either of these cases, the plant might almost as well endeavor to extract food from a pavement, as from the subsoil, until it is improved. But if the plant finds a soil of proper depth and well supplied with its requisite food, its growth is rapid, and opening its leaves it begins to receive food through the pores, with which a microscope shows their surface to be covered. These during the day draw in certain kinds of air, which in the interior of the plant, are converted into solid portions of its substance. That this is the fact, has been proved by numerous experiments. The part of the plant which thus comes from the air, is of course a clear gain to the farmer, as it does not exhaust his soil at all ; and here is an advantage which the good cultivator obtains over the poor one; his plants had a rich soil well prepared for the supply of their wants, and shooting vigorously up, are able to spread out broad luxuriant leaves in the atmosphere, drawing in far more food from this source than the small yellow leaves of a poor crop could possibly absorb. The very air, then, is more bountiful to the man who treats his soil liberally.

"With all the appearance visible in the external growth of the wheat, every one is familiar. There are many points that have been asceratined, relative to the internal changes which occur in the stalks at different periods, and also during the formation of the grain, which time will not permit me to notice now While the grain is ripening, the materials for its composition gradually leave the stalk, and that part loses by degress its nourishing properties, until finally, nearly all the nutriment is concentrated in the grain.

"It now becomes necessary that we should enquire particularly into the composition of the grain. If in the first place we burn it, we shall find that nearly all of it disappears, so that from one hundred pounds of wheat there will not remain more than two pounds of ash. This ash has evidently all come from the soil; the other portion which has burned away was originally air, drawn in mostly from the leaves, in the manner that I have before mentioned, but also in part through the roots. This combustible portion being by far the largest part of the whole weight, we will attend to it first. By means of various chemical processes, the substance composing this part of the grain may be separated from each other, and with a tolerable degree of accuracy.

"The following analysis is an instance of the proportions in which they are found to exist in wheat:—

COMPOSITION OF THE GRAIN AND STRAW OF WHEAT.

Org'c part of grain.		Ash.	Grain.	Straw.
Starch,.........	62.29	Potash,.........	23.72	12.44
Gluten,.........	13.00	Soda,...........	9.05	0.16
Gum,...........	1.21	Lime,........ ...	2.81	6.70
Oil,..............	1.02	Magnesia,......	12.03	3.82
Sugar, &c.,....	6.40	Oxide of Iron,	0.67	1.30
Epidermis,.....	7.20	Phosph'c Acid,	49.31	3.07
Water,..........	979	Suph'ic Acid,..	0.24	5.82
	——	Chlorine,.......	——	1.09
	100.91	Silica,..........	1.27	65.38
			99.50	99.78

"The first analysis is from Dr. Emmons' Agricultural Report, and agress pretty well with most of the examinations made by other chemists. Starch, it will be perceived, is the leading substance, and next to this is Gluten. The latter is the only body in the grain that contains nitrogen, and is consequently the source of muscle in animals that live on wheat. Take away this constituent of the grain, and feed an animal exclusively upon what is left, and it cannot thrive, cannot increase or even maintain the bulk of its muscle in the body ; its strength will gradually decrease. Whenever we find any food which contains, according to chemical examinations, much of substances like this gluten, it may be asserted without fear, that such food is eminently nutritious.

"The other substances, the starch, impure sugar, gum, and oil, are of use in forming the fat of the animal, and also in keeping up respiration. This is one of the most curious and important facts discovered by modern chemists and physiologists. At every respiration, a portion of the starch, gum, &c., of the food, is consumed in the lungs, and in the blood-vessels of the extremities, for the purpose of keeptng up the animal heat.

"Every one is familiar with the fact, that if he labors hard, especially in cold weather, he requires more food than with the same amount of exertion in warm weathor, and that if he is hungry at such a time, and deprived of food, he soon begins to suffer from cold ; this is because he needs a fresh supply of material to burn in the lung for the purpose of keeping up his vital warmth.— Every farmer knows, or ought to know, that if his animals in winter are kept warm, and sheltered, they do better than those that are exposed in the open air to the cold. This is because in the latter case, a large part of the ford which would otherwise have gone towards fattening the animal, is used up in the increased respiration necessary to keep him warm.

"It is worthy of notice, that in this grain, which if taken in fair marketable condition there is according to the table, about ten pounds of water in each one hundred of grain. New wheat frequently contains from twelve to sixteen pounds in one hundred.

"I may here say a few words as to the various practices which are followed in cutting wheat. If allowed to become dead ripe in the field, a considerable portion of its starch and sugar is changed to epidermis, or woody fibre, that is the skin. The grain will then yield more bran, and less fine flour, than it would have done if cut ten days or a fortnight earlier. The result of many careful experiments has shown that when cut at about the above time before entire ripeness, the grain is heavier, more plump, and actually measures a greater bulk. The skin is thinner than it would have been if allowed to stand, for the causes mentioned above, and therefore more fine flour is obtained to the bushel.

"The same reasoning applies to the straw. It is well know that if wheat be mown and fed to stock whille green, even with heads cut off, it is an excellent fodder; and it is equally well known that if allowed to stand in the field till the grain is ripe, the straw consists of little but dry indigestible woody fibre.—Now the same change takes place, to a certain extent, in the straw, as in the grain; it also contains some gum, sugar, &c., and is therefore nutritious while green, but as it ripens, nearly all of these are converted into woody fibre, in the manner that has been mentioned.

"By cutting the grain, then, before it is quite ripe, a double object is gained; its own quality is improved, and straw when cut up with hay, &c., is readily eaten by stock, and has really some nutritive properties.

"We all know that it is the *grain* which is sold and carried away from most farms, the *straw* in one way and another, usually getting back to the land. It is then clearly to the composition of the grain that we must look for an explanation of our difficulties, in attempting to restore our exhausted land to fertility. What was the substance which was found to be most abundant in the ash of this part?—all will remember that it was phosphoric acid. This is one of the least abundant substances in the soil, and is, therefore, likely, under the demand upon it for the formation of the grain, to be soonest exhausted. Ordinary manures contain phosphates, but the great bulk of them is straw, which is from the Table, not rich in phosphoric acid. *There* is a special deficiency in the soil, a common manure does not contain enough of the particular substance needed to supply it in sufficient quantity for the wants of the crop. Much more must be present than the plant actually needs, in order that it may be obtained with facility.

"On all worn out or failing wheat lands, the experiment of adding phosphates, may be tried with great probability of success; that is, some combination of phosphoric acid in addition to half or two-thirds the usual allowance of common manures. The cheapest and most convenient source of phosphoric acid for farm purposes, is found in bones, which consist in great part of phosphate of lime. Two or three bushels of these, dissolved in sulphuric acid, or in place of this seven or eight bushels of bone dust, or ground bones, will be an ample application for an acre; it is a cheap remedy, and one that, as all can now see for themselves, can be tried with strong probability of success. Guano, where it can be had, is also an excellent special manure; it is to be used at the rate of about two hundred weight per acre, with half the usual dressing of barn-yard manure. Good guano contains about one-third of its weight of phosphate of lime, and some samples much more than that.

"It is to be observed that I do not recommend phosphates as a specific in all cases; the defect may in some instances be of another character entirely, but I do say for the larger portion of our land they will be found remarkably efficacious."

A Useful Table for Farmers and Planters.

Counting plants one foot apart each way, we shall have 43,560 upon an acre; an acre containing that number of superferial feet. Take the figure in the first column of the following table as the distance apart, and an acre will contain the number of plants in the second column:

1½ feet,	19,360	12 feet	302
2 "	10,890	15 "	192
2½ "	6,960	18 "	134
3 "	4,840	20 "	106
3½ "	3,535	23 "	90
4 "	2,722	25 "	69
5 "	1,742	30 "	48
6 "	1,210	35 "	35
8 "	[illegible]	40 "	27
10 "	43[illegible]	45 "	21

The rule is this, multiply the distance each way, divide 43,560 by the product and you have the number of hills in an acre, which this distance will give. How many hills in one acre two feet each way, 2x2—4, divide 43,560 by 4 and you will have 10,890, the number of hills to the acre, 2 feet each way.

EDITOR.

For the N. C. Planter.

Report on the North Carolina Geological Survey, &c.

Mr. Editor:—On reading this (last) Report, on the Geological Survey in North Carolina, a few days ago, the differences wrought by time were deeply and strongly manifested. The Legislature of North Carolina was the first in the United States to authorise a Geological Survey of a State. This survey was made by Professor Olmsted, and published in 1824 and 1825. In the long notice of that report in Silliman's Journal for 1828, we find the high estimation put upon it at that time. The State did high honor to itself for effecting the survey, while the report reflected no slight honor upon it author. Though not a full report, it was then advantageous to the State and to science. In the thirty years and more, which have since passed, the progress in the knowledge of minerals and of geology, and in scientific and practical agriculture, in the country, is immense.—The exploration of rocks and mines and coals, the chemical examination of plants and their seeds, especially of the cereals, and the analysis and composition of soils, all demand a vastly greater amount of knowledge; and an adequate report on them must be profitable in a high degree to the people of the State, not to speak of the mere scientific interest. Such a report leads to these remarks.

There are certainly great pecuniary interests promoted by the discussion of agricultural topics in this report. Take for an example the whole subject of Chap. I., and see how science sustains, and gives the adequate regions, for the facts stated. In the previous chapter, the elements essential to a good fertile soil, and yet the dissemination of those required for the accomplishment of specific purposes are presented, and the points stated which lie at the very foundation of good husbandry. Let the people know all this, and make the efforts in the only reasonable way to accomplish the end, and their labors will at once be wiser and more profitable. "In the cereals, silex is an essential element" for nearly all parts of the plant. There must also be phosphate of lime in the seed, or good flour cannot be grown out of it or into it. To remove the phosphates from the soil from year to year and not return them to the earth in any way, is to make the most careful labor wholly without any profitable return. True, the winds may bring you rain, and carbonic acid and ammonia, most important elements to crop, but phosphate of lime never comes by any atmospheric operations; but it must be brought up by deeper ploughing, or it must be returned by some fertilizer spread over the field.

But, Mr. Editor, it was not my intention to give a review of this report of Dr. Emmons, or to sustain what he lays down with such force and science, for the report needs no such aid or endorsement; but, glad to see these analyses of soil, under a form in which they can be made applicable to the interests of agriculture, I was drawn away from the direct course marked out.

The Chapters on the marl-beds and different marls, their composition and use; different theories; correction of injurious marls; the green sand formation, and its use as a fertilizer, are clear and profitable. Indeed the whole subject of fertilizers, inorganic and organic, common manures or fish and crabs, will increase in interest with every advance made in practical agriculture. It is by all these that a State is repaid for its support of similar surveys. The State of New York is said to have spent more than half a million of dollars on her Geological Survey and its twenty volumes and results, and is held to have been a gainer by the operation. So obvious are the the advantages that many of the States are now prosecuting similar works, while numbers of others have been already mada and published.

In Chapter XV., begins the Palæontology, or history of the fossils discovered in the State of North Carolina. Dr. Emmons leads one to see the fossil bones of the horse, buried before the continent was discovered by Columbus, and ages before; also of the hog, elephant, mastodon, deer and whales; wonders enough to honor the State. But reptiles and fish follow in abundance.—To these are to be added the fossil shells of Chapter XVIII., covering 58 pages; not to speak of the beautiful fossils of the last chapter. To the lover of the works of the Creater, in the present or past ages, fossils have peculiar interest. Illustrated by plates, every curious mind has the means of gratification.

These fossils, by the way, are very differten from these in some of the preceding reports, and belong to a very different geological period. The author is sustained by high authority in some cases where doubt had been entertained. Palæotroches, major and minor vainly imagined to be concretions, are held by sowers to be genuine fossil corals.—The fine Dramatherium, Sylvester and Rutiodon Corolinensis, are great acquisitions in fossil geology. SPECTATOR.

November, 1859.

To Preserve Dried Apples and other Fruit.—When your fruit is thoroughly dried put it up inbags or sacks with a little sassafras bark, (a handful reduced to small pieces to a bushel) will preserve it for years from the worm.

EDITORIAL.

RALEIGH, FEBRUARY, 1860.

☞ Subscribers receiving the Planter with a *cross mark* opposite their address, are thereby notified that the No. thus marked closes the time for which they have paid, and unless renewed, the paper will be sent no longer. We earnestly request all finding the cross mark on this No. will promptly forward the money for the Planter another year, and if possible, send another name (or a club) along with it.

The cash in advance plan is now adopted by all the papers of the country, and we believe our subscribers will like it better than the credit system; hence, we have adopted it, and must rigidly adhere to it. No one will therefore agrieved when he finds his Planter discontinued, if he neglects to send on money to renew. *All* will be treated alike. We trust, however, all will like us so well, that each will send on his renewal as soon as he sees the *cross mark*.

Our Enlargement.

Encouraged by the flattering favor our Planter has received under the management of its new Editor, we have determined to increase the size of the pages, procure new type, (which will be to hand in a few days,) print on the best of paper, and make such improvements from time to time, as the patronage will justify.

But do not suppose, kind reader, that our list has *already* reached a point to justify this. This is not the case. We have only a little over one thousand subscribers, and this number, *you know*, will not pay expense of publication. But from the interest manifested by many of our Agriculturists, we believe our list *will* increase, and that such a journal as we offer to the Farmers and Planters of North Carolina and the South *will* be supported by them.

We are under obligations to many friends for the deep interest they have taken in the work, and for the handsome clubs of subscribers they have sent us. We sincerely thank them, and pledge ourselves to furnish as good an Agricultural paper as can be procured anywhere, and much better suited to the South than those of the North, so extensively patronised by southern Planters.

We want to add eight or sixteen more pages to the size of each number of the Planter, and we therefore earnestly request every one of our present subscribers to aid in increasing our list so that we may be able to do so.

We hope each one will send us one or more new names to be added to our list, from time to time as they may be able to procure them, and be sure to send us a club before the March No. is issued.

PUBLISHER.

To Our Brother Editors.

The Editors of the State generally, have done the Planter full justice in the kind and complimentary notices given it, for which we feel very grateful. And we will thank them to notice this No., and tell their readers of our efficient Editorial corps, the enlargement, and our desire to make still further improvements. We are determined that the *North Carolina Planter* shall be equal to any of the Agricultural Periodicals of the day, in point of valuable and practical information to the people of the Southern States. We invite a comparison with any others *now*, in this respect.—PUBLISHER.

☞ Our Southern Agricultural Exchanges, or at least several of them, have appeared this year increased in size and price—giving double the amount of matter for $2. The most of them present a thrifty appearance and say their prospects are fine, subscription list swelling, &c. We are glad to record this fact. It is an encouraging omen, and gives assurance of increased thrift and prosperity among the people.—Thetruth is, those who have heretofore been opposed to book-farming are beginning to find out, that unless they avail themselves of the information to be found in Agricultural publications, they farm to very little profit. Hence, every man of forecaste is subscribing to one or more of them.

The Political State of Agriculture.

As the conductor of the only Agricultural journal in the State, we consider it not only our duty, but prerogative, to make such suggestions as we know to be promotive of the interest of its Farmers and Planters.

Our agriculture is complimented and lauded by our Presidents, Governors, Legislators and other functionaries of the Government, but what have they done for it? At the termination of the struggle, which resuted in the establishment of our indepentdence, the agriculture of the different States found itself in a situation for prosperity.—It had not then adopted the fallacy of believing, that by giving twenty millions of dollars every year to build up markets for its surplus produce, it would receive in return forty millions. Then and in all time to come, it could avail itself of all the markets in the world, where this silly and ruinous practice prevailed. These markets abroad, were so many mines of wealth to the agriculture of this country. The gold of California and Australia may be exhausted, but the markets of this world, which then cost the labor of the States nothing, would always have in abundance, the precious metals to exchange for their surplus produce.

The unproductive but consuming classes of this and other countries do certainly have the effect of enhancing agricultural prices; but when the agricultural interest is required to pay a bounty for the support of these classes, it loses more than it gains.

This country, now, no inconsiderable section of the commercial world, might and should have shared the profits of agricultural price in other countries, established by these unproductive and bounty supported classes, without contributing any portion of the expense, which it cost to support them. It might have realized the profit and avoided the outfit. This policy, adopted at the birth of our independence, (and it was for this that we endured the toils which tried the souls of men) and continued until now, would have been just to the agricultural and and not oppressive to the other classes of industry. But those who have complimented and lauded the agriculture of the country, have been the first to oppress it. These wise acres preferrsd to incur the outfit, rather than realize the profit. Soon after the revolutionary war, the evil genius of agriculture crossed the Atlantic and legislated into existence several items of the British system for establishing markets and regulating prices. It mastered these juvenile exoticks until they became monstrosities or hideous carbungles on the body politic.

Like those were on the human body, they became unwieldly and oppressive. To publish their paralizing effects on the patient, baffled the skill of the political empiricks of the day. To amputate them, was considered fatal. During the period of suffering, the agriculture of this country prohibited itself from sharing in the benefit of the high prices established by aristocratical institutions abroad. European is oppressed by the privileged classes of the country; American by itself. In Europe, the cultivators of the soil are not in control of the government. Here they are, but suffer themselves to be gulled and misrepresented by politicians. European agriculture is unable to help itself American can, and will rise in its majesty knock off its manacles and assume that controlling influence in the government to which it is so justly entitled.

The true interest of American agriculture is to pay nothing for markets, which will swindle those who buy them, and yet to share in their enhancement of prices. At one time, we pursued a different policy and have not yet entirely retrieved our error. Until recently, what law, national or State, has been passed in favor of our agriculture?

A few years ago, the legislature of this State passed an act incorporating the North

Carolina State Agricultural Society and endowing it with the inadequate sum of fifteen hundred dollars annually. How many millions of dollars have been appropriated for the construction and building of Rail Roads in the State? We are not opposed to the internal improvement of the State. It is the true policy of every member of this once glorious confederacy, now rocked, shook and almost convulsed to its very foundation by the fanaticism of the negro philanthropists of the North. But an annual and larger appropriation of the sinews of war for the benefit of the agricultural interest, is necessary to make it correlative to your system of internal improvement. These appropriations should be applied to the establishment of societies auxiliary to the State institution now held in or near Raleigh. One in the west at or near Salisbury, the other in the east at or near Newbern; then the proposition to locomote the Society of the State at large will be decided.

We do not desire the readers of the Planter to infer from what we have written in regard to the evils under which agriculture has been and is now laboring; to infer that we are inimical to manufactures and other branches of industry. We believe that whatever depresses agricultural effort, and thus impoverishes the land of the country is an enemy to manufactures and the mechanic arts. A flourishing agriculture leads to the establishment and enrichment of manufactures. You might as well undertake to fatten animals in a lean pasture as to promote the interest of the last independent of the flourishing condition of the first. To burden agriculture in order to raise bounties for manufactures, should consign the author of the folly to the lunatic asylum. It has a contrary tendency. It enables the monied capitalist to seize upon and appropriate to himself, the whole amount of the profit arising from the protection intended to be afforded and to allow but scanty and insufficient wages to the operatives. We care not what may be the avowed object, but full well do we know, that the effect of protecting duties is to strengthen the government at the expense of the people and not the encouragement of domestic manufactures. All classes then in the community, farmers, merchants, mechanics, and others should rise up en masse in opposition to these odious discriminations. What logician can demonstrate that all exactions in a republic are not as oppressive as those under a monarchy? Free trade is now the acknowledged principle of the commercial world—England has repealed her corn laws—China and Japan have opened their port to all the world. The restrictive system, the chemera of a disordered intellect has exploded and the greatest favor which the Government can bestow on any branch of industry, is to let it alone. We do not write this editorial as party men, or in spirit of party. As conductors of an agricultural journal, we know no party; it is our duty to encourage, protect and promote the interest of the farmers, they have a right to expect it—we will not disappoint them.

These invidious discriminations in favor of one class, at the expense of all others, growing out of the restrictive system, is not the only burden imposed upon the agricultural interest. Whilst these are being removed by the increased lights of political economy, there is another on the increase. I allude to the existence of the free negro class in this and all other slave holding States. We do not intend to consider the political consequences of this policy. Our present object is to notice its influence on agriculture.—Agriculture in the Southern States depends so much on slaves, that it must be deeply affected by whatever shall indispose them to labor, render them intractable, or lead them into a multitude of crimes and irregularities. Free negroes in any slave holding State, are well calculated to effect all these ends. They serve as agents to dispose of property stolen by the slaves. They not only diminish the value of slaves by leading them into crime and dissipation, but render them dissatisfied and discontented with their condition. It is useless to undertrke to prove what every slave holder in the slave States know by experience to wit, that his agricultural operations are greatly embarrassed, and his efforts retarded by the presence of a free negro class around him. What is the remedy? It is in your hands. Remove them beyond the limits of the State or reduce them to slavery. The policy of this measure should be determined by considerations of a practical morality, the necessity of the thing, and not by that pseudo negro philanthropy, which actuates and moves the fanatics of the north; a fondness for negroes ovor the whites. The only question to be determined, is whether the seperation of free negroes from the whites and slaves, will benefit or injure a majority of them as constituting one body? The situation of the free negro class is well calculated to drive it into every species of vice and crime. The present condition of the free negro class, deprived of the rights of citizens, the comforts afforded the slaves, consigns them to a life of idleness, guilt and crime. The slaves are more frequently made to share in their guilt and consequent punishment than in their theft, undetected and unpunished. The slaves are made to repine at their own condition, by the presence of free negroes constantly before their eyes—stalking about in indleness and rags. This fact, which of itself should settle the question, is undoubted; every insurrection of slaves heretofore has been instigated by the free negroes; several were convicted and hung for inciting the insurrection in Southampton, Va., in 1831. Moralists teach that vice is misery, then the free negroesare placed in a state of misery itself, and adds greatly to that of the slaves and whites. Virtue, self-interest, sound policy and self preservation, all unite in recommending the proposed seperation. The greatest good to the greatest number is the true policy of every government. If it should not benefit every individual of the three different classes, no doubt can exist of its benefitting a majority of each, and a large majority of the whole. No injury to the whites or slaves, but much good will result from the measure. The free negroes will be relieved from the disadvantages of their present inferior condition, from the necessity of living a life of idleness and the dangers to which they are always liable by a commotion among the slaves. The consideration of this subject has been before the Legislature of this State for the two last consecutive sessions. No legislation has been adopted. A gentleman of talent is now discussing it in the columns of the Southern Planter, and we propose to republish his views in this journal before the meeting of the session of the next General Assembly of this State.

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☞ In our January number we published a short extract from the report of Professor S. W. Johnson on Professor Mape's superphosphates of lime, and promised the report in full in this No. Since which, we have received the January number of the Working Farmer, of which Prof. Mapes is the principal Editor, containing an address to his readers, from which we make the following extract:

"The pitiful reference to canisters, put up to be given away for analysis, is beneath contempt, as we never have been applied to for one of those canisters for any such purpose, nor have we ever given one to any chemist for analysis. We have published the analysis of Prof. Hosford, Prof. Hayes, Dr. Endlin, Dr. Antisell, W. H. Bradley, and other chemists, far better known to the community than S. W. Johnson, and we have published the affidavits of every man engaged at the factory, that all the phosphates there made was of the same quality, and also the certificates voluntarily sent us, and many in consequence of the attack by Johnson, which proves, that in its use the phosphate is more valuable than any of the manures referred to by Johnson, as its equal or its superior."

This covers the whole ground for the defence. When we published the extract from Prof. Johnson's report, we knew nothing of the controversy between these learned gentlemen, or we should not have published the extract in question, without giving Prof. Mapes defence. When doctors disagree who shall decide? The December number of the Southern Planter contained the full report of Prof. Johnson's, from which we make our extract. Seeing that the Southern periodicals, with which we are in exchange, were giving publicity to this report, we felt it to be our duty to caution the planters of our State against the use of Prof. Mapes' superphosphates of lime. We should have been recreant to our duty not to have done it, and we repeat that we should have published Prof. Mapes' defence had we seen it. We design to injure no man, by thought, word or deed. The whole subject is now before an enlightened public, and they must decide for themselves.—Ed.

The Importance to the South of Manufacturing her own Staple—Cotton.

Read before the "Darlington Agricultural Society," at its Annual Meeting, September 8th, 1859.

Those to whom were referred the consineration of "the Importance to the South of Manufacturing her own Staple—Cotton," having had the subject under review, beg leave to submit the following

REPORT:

The amount of freedom which a people possess is to be estimated, not entirely by the amount of civil and religious liberty they enjoy, but rather, by these things combined with their capacity to supply their own wants, and to sustain, unaided, their own existence. Liberty is not a thing which can be handled; it can neither be felt or seen, but, still, it is a great producer of prosperity, from the fact, that it secures one in the undisturbed possession of his property, and encourages him in the effort to increase its bulk; it is owing to this that we find the pecuniary condition of the masses, bearing a certain ration to the amount of liberty they enjoy. But, a nation may possess great civil and religious privileges, and yet, be in a great measure, devoid of enterspise and industry, which are the great promoters of freedom. In other words, she may enjoy civil and religious liberty, and still, not be free and independent.

We have the highest authority for declaring, that "he who provideth not for those of his own household has denied the faith and is worse than an infidel." This divine declaration was intended, evidently, as a rebuke to that class who, from an aversion to labor, or some other cause, leave those who, by the ties of nature they are bound to support, to suffer or be supplied by others.—Whatever is true of the individual, is also true when application is made of it to nations. We contend that a nation is bound morally (for moral obligations attach to the body politic as well as to the individual) so to use the gifts of nature as to render them productive of the greatest possible good. But, if morality does not, self-interest certainly does, teach us the propriety and the wisdom of so handling and disposing of that which we possess, as to gather from it the greatest possible amount of pleasure, happiness or profit. It is this which induces the merchant to invest his capital in those articles, which being most in demand, will ensure ready sale and certain profits; which prompts the capitalist to buy when the markets are depressed and to sell when they are elated; which determines the ship-owner as to the character of freight which he receives, and the length of the voyage which he makes; it is self interest which governs and controls the actions of men in almost every relation of life. Why should it not influence the agriculturist also? Why should it not induce him to put the fruits of the soil in such form as would secure their highest value? If he was satisfied that he could get four times as much for his cotton in Shanghai as he gets for it in liverpool, why should he not send it there? If he can get four times as much for his cotton in the shape of wrought material, as he now gets for it in its raw state, why should he not manufacture it? The latter is the question to which this report more immediately refers, and should we succeed in proving that the South loses, by refusing or neglecting to introduce manufactures, four times the value of her entire cotton crop, we shall content ourselves with leaving others to answer, why she should continue to do so.

It would be interesting to follow the progress made in the manufacture of cotton cloth, from the days of Henry VIII, when the distaff made way for the spinning-wheel, which was so quickly superseded by the jenny of Hargreaves, up to the present day, when 40,000,000 spindles are incessantly in motion. This, however, would be foreign to the subject which we have now under consideration.

Nearly seven-eights of the entire cotton crop of the world is produced in the Southern States, which, being estimated at a low average price, is worth, as it first comes into market, over $150,000,000. In 1856 about one-fifth of the cotton crop of that year, say about 770,739 bales, was consumed in the United State, the other four-fifths were exported to foreign countries. Now, let us enter into a calculation, to satisfy ourselves to what amout the South was loser in 1856.—A writer in the "American Cyclopædia," speaking of the number of bales consumed in this country during that year, says: "This amount, worth about $30,000,000, was, by a moderate estimate, made to produce about five times this sum, by the industry applied to its manufacture in the New England Factories." In other words; what had cost the manufacturer $39,000,000, was, by his skill and industry, so changed as to increase its value to $150,000,000; or to state the same proposition in terms some-what more startling, one-fifth, of the cotton crop of 1856, was worth to Northern Manufacturers as much, or more, than the whole crop was worth to Southern farmers. Follow up the calculation: by selling the raw material, the

South lost the opportunity of making $120,000,000 upon one-fifth of what she sold, or the enourmous amount of $600,000,000 upon the crop of a *single* year. This calculation may startle some of you, but it is correct nevertheless. A writer in the work from which we have already quoted, speaking of the cotton crop of a single year, says: "Though but a small portion of the cotton crop was received in New England, the Northern States derived more benefit from it, as shown by increased wealth and population, than the whole crop afforded to the States in which it was raised. The commerce growing out of the crop also supported large fleets of ships, which were owned, principally, in the Northern States and Europe." From all this the writer draws the following (to us) very consoling conclusion: "Thus, has this product served to link together the interests of different sections, and becoming in this period of its paramount importance, a bond of union between States and Nations, it has been of greater benefit to mankind than can be computed by any estimate of the financial prosperity it has created. This conclusion is very beautiful, and it may be very true, but it scarcely serves to compensate us for the loss which we are yearly sustaining by our negligence, indifference or want of enterprise. We have afforded material for the building of Northern cities, the construction of Northern ships, the erection of Northern palaces, and the realization of Northern fortunes; and what have we received in return? For thanks, we have received wrongs and indignities, and acknowledgments of indebtedness have come to us in the shape of supercilious threats.

But, we are sometimes told, that however remunerative the manufacture of cotton goods may be to others, it would not pay at the South. Pray tell us, why? Let one who is not of us, answer the question. A writer in "Enclyclopædia Brieannaca," after enumerating the advantages to Great Britain, resulting from the spread of this branch of industry—how by the introduction of machinery, cotton fabrics, instead of being brought at great expense from India, were manufactured at home, the population and consumption of the country ceased to be stationary, wages rose in every description of employment, and the demand for agricultural products increased, so that England became an importer instead of an exporter of grain—discusses the means of preserving their preeminence in manufactures, and among other things, says: "From the European States we have little fear, and the advantages which America possesses, are greatly neutralized by the other draw-backs to which it is subject. The Southern States of the Union, in which the cotton wool is raised, from their local defects, and character of the lower classes, can never become a manufacturing people." If it could be shown that the manmanufacture of cotton goods at the South would prove unprofitable, why then, as a matter of course, it would be idle, nay more, absolutely pernicious, for any one to advocate it. But what "local defects" do we labor under, which forbid the idea of our engaging in manufactures? Have we not streams as bold as any in the North? Could we not command as many facilities for transportation as the people of the North? Have we not capital, and are we not able to build railroads with a smaller outlay of money than any nation in the world? Have we not as much intelligence as our Northern friends? And, above all, have we not the raw material at our very doors, unaffected by taxes of any description? In what then, we repeat it, do these "local defects" consist? The allusion made to the "lower classes" of our population has reference, we presume to our negroes.—But we need not consider whether, slave labor is profitable in manufacturers; for whenever we place ourselves in a position to realize five times, or, even twice as much for our cotton crop as we now do, negroes will be kept at the plow; they will desert the plane, the anvil, the dray, the steamboats and the hotels and find their proper places in the cotton fields. Abundant laborers would be found among the poorer classes in every community, who, would thus obtain employment for themselves and their children.—But, in answer to this objection let us appeal to facts. We learn from the last census, that in 1850 there were in South Carolina 1,430 manufacturing establishments; the capital invested in them amounted to $6,053,265; there were 7,066 operatives employed, at an expense of $1,127,712; the raw material consumed per annum, cost $2,787, 534; and the produsts were valued at $7,045,s77.—Deduct the yearly expenses, $3,915,246, from the annual income $7,045,477, and we have $3,130; 231, or over 49 per cent, on the capital invested as the profits. Of the amount of capital invested, $867,200 were employed in the manufacture of cotton; this branch of industry afforded occupation to 1,019 operatives, at an avorage cost of $159 each, per annum, or $162,.021 for the whole number: the raw material consumed, cost $295,971, makig the total yearly expenses $457,992, which being deducted from the value of the products—$748,338—leaves $290;346, or between 35 and 36 per cent. per ammum on tho amount investcd, as the profits. Massachusetts, according to the same report, had in 1850, $28,455, 630 invested in cotton manufactories; 28,730 operatives were employed, which, at the average price paid for labor in South Carolina, would cost $4,468,070; the raw material consumed, cost $11,289,309, making the total yearly expenses $15,-

757, 373 ; the value of the articles produced is set down at $19,712,461, from which deduct the yearly expenses and we have $3, 955, 082, being between 13 and 14 per cent. on the investment, as the profits. Allow, however, that labor in Massachusetts only cost one-half what it does in South Carolina, and the profits would then be $5,189,117, or only between 21 and 22 per cent. on the investment.* If the census of 1850 is correct, there can be no mistake. we think, in our calculation. We shall content ourselves with the comparison made, inviting each one of you to draw conclusions. Who, in the facts, will be bold enough to say, that manufactures won't pay in South Carolina?

We contend, further, that the introduction of a general system of manufactures in the South, would not only increase our strength, develop our resources, magnify our importance, establish. upon a sure foundation, our future independence and fill our coffers, but it would advance our social condition, by furnishing increased facilities for educating the people. The greatest obstacle to a general diffusion of knowledge at the South, is that the people are scattered over such a vast extent of territory. Whenever a manufacturing establishment is erected, a village or a town immediately springs into existence, and hundred or thousands of persons congregate there. Let the school-house and the church go up with the factory, and let the time of the children be divided between the school, the playground and the work-room, and the social, mental and religious condition of the people would be vastly improved.—We know that we will be met, just here, with the too generally received falacy, that the manufacturing system tends to deprave and vitiate the public morals. We answer, that any system which assembles a heterogeneous mass of individuals, will have this tendency, unless proper checks are exerted; but we deny that there is anything in the assembling together of many persons, where proper discipline is exercised or right influences exerted, which tends either to vitiate, or deprave: so far from it, its tendencies, under such circumstances, are just the reverse. In proof of this, we may point to Graniteville: the largest manufacturing town in the State, it is, at the same time, celebrated for the elevated standard of morality, which distinguishes its inhabitants. The mobs and riots, so common in Northern manufacturing places, are but the natural results of the depraved moral tone of Northern society; nor are they confined to any particular class of towns or cities. If we found it necessary to employ operatives from abroad, they would be compelled to conform to public sentiment. We are a moral people, and would not countenance open immorality; we are a law-abiding people, and would not suffer its requirements to be disregarded; we are a Sabbath-loving people, and would not endure habitual desecrations of the Lord's day. Public sentiment would prevent any such exhibitions as so frequently disgrace Northern communities; the same moral power which has prevented their occurrence, heretofore, in our large cities, would prevent them at Southern manufactories, if such were established.

The subject committed to us, is one of vast interest to our section, and we feel, very sensibly, our inability to discuss it in a manner commensurate with its importance. Desiring to present our views in as short a compass as possible, we have passed over many branches of the subject which it would have been highly interesting to discuss. We have not considered the difference in the amount of labor bestowed by the producer and the manufacturer, the latter, which an hour's toil, changing the character and enhancing, five-fold, the value of that which the former has toiled for long and weary months to produce; we have not considered the increased value which we pay for the cotton which was originally our own, when, in a few weeks after we part from it, it returns to us in the shape of cloth—we have not spoken, specially, of the certain effects of manufactures on commerce, to enliven our city marts, to erect railroads throughout the length and breadth of our land, to develope our resources, to increase our population, to swell the demand for our productions, to clear out our obstructed water courses, to enrich our people and make the world understand the meaning of the declaration—"Cotton is King." We have not viewed the subject in a political point of view, nor dwelt upon the importance of doing everything in our power, at this crisis in our history, to render the South as independent as possible, in order that we may be better prepared to meet the world combined, in its crusade against the institution of slavery. We trust, however, that we have said enough to prove, that it would be greatly to the interest and advantage of the South were she

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*This calculation is, of course, not to be considered as furnishing the income from the manufactories clear of *all* expenses. There are many outlays incident to the business which we have not considered, and which, necessarily, would greatly decrease the net profits. It serves our purposes, however, to show, that after deducting the two principal items of expense from the gross income, manufactures in South Carolina have paid a handsome profit.

Mr. Gregg, of the Graniteville Factory, in his report of 1858, says: "*We* have earned in the last seven years on a capital of $360,000, the sum of Two hundred and Forty-six Thousand Nine Hundred and Forty-six Dollars—nearly ten per cent."

to manufacture a fair proportion of her great staple. Respectfully submitted,

F. F. WARLEY,

We heartily concur with Mr. Warley in his report, and earnestly recommend his views to the consideration of the South.—The present crisis, should not be disregarded by the slave-holding States. It portends evil, possibly, a dissolution of the Union and civil war. In time of peace we should prepare for war, but, the times are not peaceable; our territory has been invaded, our houses barns and stacks conflagrated, our people violated and murdered. Let us do or die.—The South can and should make herself independent of the North. Now's the time, now's the day; see, the northern bloodhounds preparing for our destruction. Sixty-six members of Congress have paid their money for the publication and distribution of Helper's book among us. If these black republican scoundrels, engaged in plots and conspiracies against the Government, are not fit to be speakers of the House, and not fit to die unless it be necessary to increase the number of devils in hell; when the House is organized, if every one will not some southern members move their expulsion? Unless the authorities of the non-slaveholding States will define their position, give us assurances of non-intervention with us on the subject of slavery as it exists, co-operate with us in breaking up these underground rail roads—suffer the reclamation of our fugitive slaves without molestation and deliver up their citizens when they violate our laws and flee from justice; non intercourse with the North must be the law of the South. Then, we must do our manufacturing, carry on our commerce with all foreign powers in our own vessels, ships and steamers. We are able to do it, we must do it; we have been hewers of wood and drawers of water for the North long enough. We have the water powever, we can create the steam power, we have the raw material—let us go to work, establish our independence, and make the North behave herself.—Ed.

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Kindness is the golden chain by which Society is bound together.

For the N C. Planter.

Brother Farmers:—There has been a great deal written about the Improvement of Land. Some writers say there is an abundance of material on every man's land to improve his Farm. I say the man that makes such an assertion is mistaken—he is unacquainted with piny woods land where there is not a pond, branch, creek or any thing of the kind to get the material to make manure: his only chance is pine straw, and the only good *it* does, is to hold the droppings of the stock together. As a general thing, the clay on our sandy land is two or three feet deep, and the manure that we make on such land does not improve it, for it is not the kind that it needs. Putting strong stable manure on sandy land, is like giving a warm water with a hot fever. We need clay, or muck out of the low grounds of a creek or river to put on our land. Then we could improve it and make fine crops every year on the same land.

Now, the question is, what must we do, or how must we do, to keep up our land? My answer is, we must have open land enough to tend it one year and rest it two; and by so doing our land will stand drought a great deal better, and improve every year if well managed; because the vegetation that is on the low keeps the summer's sun from penetrating so deep into the ground and drying up the moisture.

I will now give you my plan of cultivation: In the spring when I get ready to break up my land, I tell the plowers to go to such a field, (the one I intend planting first,) and go one right after the other around as the fence runs, and finish in the middle; by so doing I leave no water furrows to make gullies; and if you want a heap of plowing done in a little time, put the fastest horses behind and tell those before to keep out of the way. When I get ready to plant corn, I have my rows laid off four-and-a-half feet, and I have a grown hand following behind, dropping in the same furrow, every time the right foot makes a step; the corn is dropped at the toe, and the corn is about five feet that way. I care not how small the hoe is that the corn is covered with, nor how lazy the hand is that covers it, so the corn is covered deep enough to keep the birds from seeing it for the most of corn is covered too well—the better it is covered the worse it come up.

When the corn gets large enough to plow, I run four times to the row, thin and chop. That answers for the first working, but if any of the middles get foul, I split them out before the next plowing. In about three weeks from the time of the first plowing, I drop peas between the hills of corn, the same way the corn was dropped, as I never cross plow, and then plow out the whole row, if the middles have not been ploughed before.

The siding furrows covers the peas. By planting peas in this manner I always secure a good crop; they are in good soil and out of danger of wet weather. (Some of my neighbors complain of not making a crop of peas; and I am not surprised at it; for they cross plow their corn and drop the peas in the water furrow after the soil is ploughed out.) I continue ploughing as long as I think it will do any good. I make as nice large corn as any of my neighbors do on their low-grounds, but not quite so much to the acre. I will say no more as I fear I have worried the patience of those of more experience. J. C. B.

For the N. C. Planter.

A Never Failing Plan to Keep Good Bacon.—Fatten and kill as early as possible; salt well and let it lie in salt three or four week; hang up on small sticks, with one piece on a stick, until the middle of February; take down and ash the flesh side well with strong ashes, then lay it down with the skin down on narrow sticks, a stick at each end of the piece of meat.

I have a scaffold made around my smoke house and lay one course of meat right over the other, so as to give a good place to lay down. J. C. BARBOUR.

From the Fayetteville Observer.

Texas in Bladen County, N. C.

Messrs. Editors:—Having recently seen letter written to you in regard to Texas in xtreme Eastern North Carolina, prompts me o address you one in regard to Middle North Carolina. Having made a late exploration f Bladen county, or rather the lower porion, I never was more agreeably surprised o find such a vastly rich country, so beautiully situated, and apparently located so as o be every possible advantage the farmer ould ask for. I will first call attention to hat part of the county vulgarly called *Hunry Neck.* It abounds in large tracts of as ich land as can be found in the State. It is ere that the famous Salt Marsh lands are; lso, Buckle, White Oak and Lyon Swamps. These are vastly rich, and will make from ixty to one hundred bushels of corn per cre. I have known some large fields to ake an average of seventy-six bushels per cre. These lands can now be bought from 3 to $20 per acre, from one to a thousand cres in a body, clear of freshets, and in earing of every steamboat whistle that passs Cape Fear River, or locomotive that passes e Wilmington and Rutherford Railroad.—These are all swamp lands, and many will no doubt say they can't be drained; they have not the fall to let the water off; or it will cost too much, or it is too hard to clear and cultivate; but I veto such talk as that from personal knowledge. In the Summer the swamps are nearly dry enough without ditching. I think the whole county can be drained at the expense of $2 per acre at the most; as for clearing they are the easiest cleared I have ever seen. The mode for clearing is to chop down in winter, let lie till planting time, then set fire, and all burn, except the large logs and trees which are killed by the fire. Mode of cultivation: First year after clearing, take sharp stakes, punch holes thick as you please, plant your corn, chop bushes one time if needed, and rest assured that will make from forty to sixty bushels the first year without any cultivation. Cotton has never been cultivated here, but I suppose these lands are as well adapted to its growth as Edgecombe, Jones or any other Eastern lands, but it would not pay so well as raising corn. A good hand here can make from $1000 to $1500 a year making corn at the present prices. These lands are located between Black and Cape Fear Rivers, thirty miles from Wilmington and sixty from Fayetteville, the best corn market in the State or in the United States. The Salt marsh lands are now being drained, and attract many visitors. There is something very pecular about this marsh. There are about seventy acres of it perfectly barren as to the growth of trees, producing nothing but grass and a few weeds and shrubbery. The soil is extremely rich, and this year produced about one hundred bushels of corn per acre, with very little cultivation, and okra stalks to such an enormous size that it would not do well to tell, but the writer could almost climb them. I am also told that sweet potatoes have been made there to weigh fourteen pounds.

Now, Messrs. Editors, would it not have been better for many who have left our State? and those who intend leaving, to look and to have looked at their own State before leaving, Many of them acts as if they think the county or district they live in is the whole State of North Carolina; but it is not so; it is a large place and good lands enough to support ten times the population. I am satisfied if many who intend leaving the State would come and look at the part of the country described in this letter, they would be content to settle here and remain in the Old State, and in future times would look with pleasure to the time they came here, and be proud that they did not leave their native State. This part of the country, unlike most rich countries, is very healthy, having good water and some most beautiful elevated sand hills to build on. There appears be a seam between the rich and poor lands; you can step off the poorest into the richest lands.

One thing I forgot to tell about; the salt marsh: that is, it has numerous salt and sulphur springs. I think the owner might make salt if inclined to do so. I think that this section of country is destined to become the Eden of North Carolina, and at a day not very far distant. Much more might be said in regard to this country, but I fear I am trying your patience.

Yours Respectfully,
NEW HANOVER.
Black River, New Hanover County.

Seeds—Seeds!

See Advertisement, on cover, of Dreer's Garden and Flower Seeds. The reputa- of these Dealers, we should think would ensure the best of Seed, and they certainly offer them on terms sufficiently cheap.

Horticulture.

S. W. WESTBROOK, EDITOR.

Planting Trees.

In planting, it is a common practice to dig a hole more or less deep, to put the tree in, leaving the surrounding ground to the usual mode of tillage—it is a far better way to plough a strip 8 or 10 feet wide, along the intended line of trees.—Use a heavy plough and get down as deep as possible—let a subsoil plough follow in the same furrow, and the ground will be well broken up to the depth of 18 or 20 inches. Along the centre of this strip, of course the trees are to be planted, in holes dug to the required size and depth. The aspect of the orchard is also of the very highest importance. It is very common to see our orchards planted in the very warmest exposure and in the most sheltered situations. A moment's consideration will convince us that this is all wrong.—The greatest drawback to fruit culture in the South is the late spring frosts. If we plant in a warm exposure the sun puts the sap in motion early; the buds are excited, the blossom appears just in time to be destroyed; whereas, had we planted in a cold place, on the north side of a hill for instance, in an open exposed situation, the blossoms would have been retarded, and their chance of being cut off materially lessened. We should plant on our highest ground, and on its northern or western slopes. Rocky or stony land is not at all objectionable for orcharding; on the contrary apples will grow on such land exceedingly well, if it be dry, that is not springy—and there are thousands of acres of land now useless, which might be made very profitable if planted with Apple Trees.

I cannot conclude these remarks, without earnestly urging upon all planters the necessity of well preparing their land, it is absolutely impossible to succeed well unless they do so, no after culture can make up for neglect now, and more or less disappointment will certainly follow, therefore well prepare the land.

An Old Planter.

Mulching Fruit Trees.

In our climate, which is dry and arid, the influence of the sun is more powerful than in the northern and northwestern states, and consequently its warming and invigorating influence awakens all the dorment elements of vegetation several weeks in advance of the vernal season in those regions. Therefore, it is important to mulch or cover the roots of our trees and plants with vegetable matter, so as to prevent the evaporation of the moisture from the soil by the influence of the sun, and thus as far as possible retard the budding and blossoming of the trees, so as to be less liable to be blighted by the spring frost.

Each newly transplanted tree should have a coating of at least two or three inches of rotten straw, leaves, tan, weeds or hay spread around the tree, covering a circular space some three feet in diameter; and if there should be a severe drought, it would be well to pour water over the mulching about once a week late in the evening.—For newly transplanted Cherry trees, this mode of treatment is highly recommended; but let the application be more liberal and cover a larger space from the stem of the tree in every direction, applying the larger portion of the litter on the South-west side of the tree. Cherry trees require more mulching than any other kind of fruit-tree in our climate, because they have not undergone sufficient acclimation to endure scorching effects of our burning sun. Many of the improved varieties were originated by Mr. Knight, of England, in a climate that is much more humid than ours; and unless they are well mulched, immediately after they are planted or before the droughts of summer, there is not much chance for success. In a word, we highly recommend mulching for all newly transplanted trees, whether orchideous or ornamental; and for the orchard, a repetition annually, but more abundant each year, as the tree grows larger until it arrives at full size; and then a large wagon load will not be too much for each tree for an annual dressing. And it should be spread all over the surface as far as the roots run in every direction; but there is no necessity for applying the litter nearer than three or four feet of the root or stem of the tree. But before the mulching is applied each spring, the dressing of the previous spring should be plowed under and well mixed with the soil, thereby adding vegetable matter to the soil annually, which is highly important to keep the tree in a healthy growing condition.

In order to prove practice is highly important, we will refer them to the fact, that a large portion of the fruit trees in the Southern States defoliate themselves during the months of August and September, just at the time their vernal dress is most needed to exercise their important offices in shading the limbs and trunks of the trees, and of inhaling the necessary elements from the atmosphere which are important to be transmitted to the tree and fruit through their agency, and for the want of which the tree and fruit must suffer prematurely. Now, we assert, that if a supply of vegetable matter is worked into the ground in and about the ends of the roots of all orchard trees every year, and they are liberally mulched, the trees will not exfoliate themselves, nor drop their fruit, until the proper season; and the happy result will be, that our winter apples will not be fall apples, as is now the case, for the want of proper management.

Soils for Fruits.

Of the proper soil for the several fruits, the Apple prefers a strong loam or soil in which clay preponderates, and which contains lime; if not, then in lime in some shape must be applied; and if the soil is naturally sandy, add clay or stiffish swamp muck. Wet lands must be drained. The exposure is of little moment; although, in the hills, we should prefer an Eastern hill-side; and in the level low lands, we should run the rows East and West. The Pear loves a similar soil; if worked on the Quince, it will thrive in any, not too sandy. The Peach and Nectarine thrive best in a light, warm, rich soil, even though quite sandy; if the soil is naturally very stiff, a good deal of sand and crushed charcoal must be applied, or trees procured that are worked on Plum stocks, which we find succeed better than, at one time, we believed possible. The Apricot and the Plum both love a cool, strong, stiffish soil.—Where the soil is sandy, try them, worked on the Peach or Almond. The Almond needs a sandy soil, like the Peach, and grows and bears well wherever it has been tried in the South. The Cherry wants a dry, mellow, tolerably rich, and not too sandy soil; The tree grows most thriftly with us; though as to its bearing qualities we can only as yet say, *we have some fruit.* But we hear of bearing trees and fine fruit in various parts of the country. Our young trees, both those worked on the Mahaleb or St. Lucie and on the strong growing Mazzard Cherry, are as promising as we could desire; and we have the utmost confidence in producing the finest varieties, in perfection, upon both stocks. Two or three years will settle the question; and until then we will not dispose of trees. The Mahaleb is a Southern tree, and seemed to require an acclimation here. It grows thriftily on any dry soil, though quite poor; but, to sustain fruit, would require such soil to be enriched. It has the effect of dwarfing and throwing into early bearing, any of the varieties worked upon it. The Mazzard is a strong growing kind, and those budded on it form large trees. The Fig thrives well in any good garden soil; bearing most abundantly, and least likely to be injured by frost, or the fruit by continued wet weather, if high and not too rich. The Orange requires a good, mellow garden soil, not wet. The Grape-vine must have a rich, deep, mellow soil, inclined to sandy, and with a good proportion of leaf-mould and strong manure—slaughter-house offal, partially decayed, broken bones, oyster-shells, &c., are good; this applies more particularly to the European varieties. The native American Grapes, as the Catawba, Isabella, Cape, Madeira, &c., should have a similar soil, though not not necessarily so rich. The improved Scuppernongs thrive well in any moderately good, dry soil; if very rich, the growth becomes too great, and the productiveness is lessened. For the Raspberry provide a deep, rich, cool and stiffish soil; for the Strawbery a similar soil but inclined to sandy.

Grape Growing and Wine Making in California.

The Sacramento (California) Weekly Union contains an excellent Treatise on Vine Culture, written by a Hungarian gentleman, who claims an experience of many years in the culture of the Grape in his native land, and from travel and observation in the Vine districts throughout Europe, as well as a long residence and practical acquaintance with the art in this country; and is therefore, doubtless, well qualified to impart a variety of useful information on the subject. We make the following extracts from this Treatise:

LOCALITY.

In California, locality is not so material as in European countries, especially where, during the summer season, a good deal of rain falls. If the vineyard is not exposed during the whole day to the sun, said rain will rot and damage the grapes. California, having an even temperature, is warm, and, without rains in summer, almost any locality will do; but if a western gentle slope can be obtained, by all means it should be taken. [In the Southern States, we prefer an Eastern or South Eastern slope.—EDS.]

SOIL.

When the planter resolves to plant a vineyard, he should determine whether he is planting to produce grapes for wine or for the market. If for the former, he must look for a soil, which is, by volcanic eruption, made, containing red clay and soft rocks, which will decay by exposure to the air.—The more magnesia. lime or chalk the soil contains, so much the better. This kind of soil never cracks, and keeps the moisture duridg the summer admirably, Such soil will produce a wine that will keep good for fifty or one hundred years, and improve annually, is not liable to get sour, or when exposed to the air, after one year old, to get turbid and change color in the bottle or glass.

If such soil cannot be got the ground desired to be laid out for a vineyard, the second best may be taken, which is shell-mould. There are many localities in this State, even as high as the mountain tops, where acres of land consist of decayed shells. Such soil will give a good wine in great abundance.

The next best to the above soil is a gravelly clay, slightly mixed with sand, so that it will not bake. If it cannot be red color, dark black; but avoid gray clay, which bakes in summer.

The last of all which may be used for the production of wine, is a light, sandy, gravelly soil. This will give an abundance of wine, but it will not keep for any length of time. It will soon change color and become sour when exposed to the air, and the only mode of keeping this kind of wine for years is by adding brandy or alcohol to it, which, of course, deprives it of its purity, and makes the same injuries to the health of the consumer. The soils described above are recommended for producing wine as above stated; but for producing marketable grapes the planter should select a piece of ground which is a rich, black, gravelly, or sandy loam, exceedingly mellow, as most of the alluvials are; and if well rotten manure from sheep or cattle corrals can be obtained, it will pay well to haul it on the ground. To be prepared for the grape vines it should be moderately moist, though not too much. In this State often deserted Indian villages are found. In such localities the soil is exceedingly rich. A bucketful of it in the hole of a vine will astonish the planter by its effect. Such soil as just now described, either made by nature or artificially, will produce magnificent bunches of grapes, with large berries in an immense quantity, which, of course, will please the eye and palate, as the bulb or skin is thin, and consequently, the best qualified for table use.

PLOWING.

The best mode to plow the land is with the so-called Deep Tiller, for with it, by putting three horses abreast, you can plow twelve inches deep, except the soil should be very rocky. Follow this plow in the same furrow with a common shovel plow, or, as it is called in some places, Bull Tongue. This simple instrument, with two horses attached to it, will tear up and pulverize the earth ten or twelve inches more in depth. There are various designs of subsoil plows, but most of them require a great moving power and will not answer after all. The above-namd Bull Tongue is successfully used by many planters in Sonoma and Napa valleys, but it matters very little what plows or sub-soilers the planters uses as long as he plows and sub-soils his land from twenty to twenty-four inches.

LAYING OUT THE VINEYARD.

It is sufficiently proved, by close observations in Europe and California, that the vine planted eight feet apart is the best mode, especially in California, where land is yet cheap and labor high. Vines planted the above-named distance can be worked with the shovel plow and one horse.—Eight feet is as close as persons ought to plant. If planted closer the vines, when five or six years old, will branch out considerably, and in the months of May, June and July, it would break all the tender vines by using a horse and shovel plow.—The planter would be, therefore, compelled to employ hands with hoes, and this would cost, in the first instance, ten times as much as horse power; and secondly, it would not do good work, for no man will hoe as deep as a shovel plow goes.

Persons laying out vineyards must not be miserly, but leave wide roads, say twelve feet, at least one road every fifteen rows, which would be one hundred and twenty feet apart; otherwise, when the vines bear, and the grapes are picked, the person picking the same must carry a heavy basket a long distance, to the road where the cart stands, to haul it to the press-house.—In reality, no person will lose anything on the crops on account of the road, for the rows adjoining each side of the road will bear more, as they have an aditional four feet of ground to feed on. No planter should, under any circumstances, plant trees of any description in a vineyard. A vineyard must be a vineyard and nothing else! I need not waste room here to say how to lay out the rows; every man knows that and has his own mode for it; but a straight row in every direction is essential to a prosperous cultivation.

DIGGING HOLES.

When the land is laid out, as above recommended, and a stick staked to every point where a vine is to be planted, a hole must be dug, twenty inches square and about two feet deep. The ground from said hole is to be laid as follows;—The top ground to your right, the second ground to the left, and the third in front of the hole; then the bottom of the hole should be well dug up with the spade, leaving the last ground in the hole. The earlier the holes are thus finished before planting the better; then the longer the earth is exposed to the atmosphere and rains the more it will be fertilized.

before you begin to plant your vines, have the holes filled, for rooted vines, to about six inches of the top; if for cuttings, about ten inches. First, the ground to your right, being the top ground, is thrown in the bottom of the hole; then that to your left. This done, you proceed.

PLANTING.

There are two ways of planting—one with cuttings, and the other with old vines. There is a good deal of difference of opinion amongst good and practical vineplanters. Some argue that if a cutting is properly planted at once on the spot of it destination that it will be more advanced in its third year, and consequently, it will bear in said more than the rooted vine; which first is set as a cutting in the nursery, and the next year transplanted on its destined spot. It is reasonable to suppose this to be the case, but it still leaves a doubt in the mind whether a larger tract of land can be or will be as well worked as a small one. In a nursery, by good care, the cuttings can be rooted four times as strong as in a large field; besides, in the latter case, whether the vine has good roots or not, it is left where first planted; but when the rooted vines are taken out of the nursery for transplanting, the planter will select only those having faultless roots. But the greatest advantage of the nursery is, in my opinion, the fact that if a planter intends to plant one hundred acres of vineyard with cuttings, he will have to cultivate one hundred acres during the summer; but if he plants his cuttings for said ond hundred acres in a nursery, two acres of ground will be enough to raise sixty eight thousand rooted vines, the number required for one hundred acres. Now, to cultivate these two acres in the nursery it will require ten days labor with one horse; while, on the contrary, for one hundred acres, during the months of Narch, April, May, June and July (after that time no more plowing is required), you need two men and four horses—equal to two hundred and sixt days' work, and double that for the team —then the board of men and feed for th horses during that period. However, thi is a matter of opinion, and each plante will follow his idea, or will accommodat himself to surrounding circumstances.— But now to the planting:

When the holes are filled as above described, if you plant cuttings, have sai cuttings two feet long, bend the cutting ten inches deep in the hole near a righ angle, the lower part of which is laid horizontally on the bottom, and the upper par on the side wall of your hole, the top of i to be above ground three inches; fill, then the hole from the ground surrounding th hole, which, of course, is top ground; the tramp the earth fast on your cuttin that no vacancy shall remain in the hole otherwise foul air will gather in said vacancy and the cutting become mouldy an will not live. But if you plant roote vines, your holes will be filled to six inches Now, take your rooted vine, spread th roots on the bottom, and throw from th surrounding top ground on the root; shak it well so that the pulverized ground sha get amongst said roots, then tread gentl with your foot round the root. It is stil better if you prepare from one part of fres cow manure and three parts of black eart water, a mud mixture of the consistency o tar. Put, before planting, your roote vines in the same, and when so dipped turn them in the bucket round and round by this every root and fibre of said vine will be surrounded with this tar-like stuff and prevent the same from becoming mould under ground. After this the ground i the front of the hole (taken out of the las of the same) is to be leveled so about th vine as to leave a dish-like excavatio around the same, as a receptible and conductor of moisture to the roots. Be careful never to plant your vines too deep. I is better if you make a mistake, to hav them too shallow than too deep.

[*To be Continued.*]

COLD CUSTARD.—One quart of new milk one-half pint of cream, four ounces whit sugar, a glass of water in which an inch o washed rennet has been soaked, and nutmeg.

sage Orange as a Plantation Fence.

Every Farmer is aware of the imporance of having a Fence which shall be oth effective and durable, combined with heapness; in fact this is becoming more nportant every day. The cost of fences a very serious drawback on the income f the Planter. We are satisfied there is ow a very general interest felt throughut our State on the subject of Fencing. he first cost of fencing with the Osage range, when its durability is taken into onsideration, is almost nominal. Then it effectual. No horse, cow, goat, hog, or ny other animal can penetrate this fence, he thorns are so severe, that after one rial no animal will try it again. This edge, of course, requires protection for he first three years; after that time, proided the land in which it is growing is ot very poor, it will be an effectual fence, equiring trimming semi-annually. The onstant repairs needed about plank and ail fences is altogether done away with. he well known agricultural writer, Bidle, observes—"it is the enormous cost of aking and keeping in repair fences, which eep down the agricultural interests of the ountry." In an estimate made by him ome years since, the fences of Pennsylvaia alone cost $100,000,000, together with n annual expenditure in repairs of at east $10,000,000. Such being the heavy urden imposed on one State alone, how normous must be the cost of the fences of ll the States combined! In the Osage range hedge, we have an impregnable ence; all repairs being done with the edge hook, any common field hand can ttend to this with a little attention from he overseer or owner for the first time of rimming the hedge. We have tried these edges and are perfectly satisfied with the esult; in fact, in the south it is the best ence we can have for plantation use.—Half the time spent in mauling and splitting rails, will keep this fence in good trim. We therefore feel satisfied in offering to our readers the Osage Orange as a substitute for the old worn rail fence, or in fact any other fence, except of course fancy fences near the dwelling. There is quite a variety of plants for this purpose, though we give the preference to the Pyracanthus, being the most ornamental.—We shall shortly plant two miles of Osage Orange hedging for one of our most energetic Planters, who justly says he is tired of making and keeping in repair wood fences.

W. H. HAMILTON,
Landscape Gardener,
Raleigh, N. C.

For the Ladies.

Flower Gardens.

Spade up deeply all beds and bodies, where it is intended to plant flowers the coming summer; prune and tie out all Climbers; towards the end of the month Roses may be pruned; thin out all weak shoots and fork the earth near the roots, stirring it up deeply; rich compost should be forked in, and if fine flowers are an object, the plant should be well mulched before hot weather sets in.

Bedding out Plants.—All rooted cutting's of Verbena, Geraniums, Hantana, Bouvordia, and other bedding out plants, should be induced to make strong growth, as one good bedding out plant is worth two poor ones when the time of planting arrives.

Grass Lawns.—Top dress as soon as possible with decayed stable manure; if this cannot be had, then wood's mould, or rich garden earth.

Evergeeens.—All newly planted Evergreens should be mulched. Attention will be needed to these; see they do not suffer from drouth when about to start into growth. Our readers will find it more successful to plant the Holly when it has made half inch of new growth, than at any other time, being careful not to mutilate the roots. The same remarks also apply to the Cedar.

W. H. HAMILTON,
Landscape Gardener,
Raleigh, N. C.

Culinary Department.

Currants, Gooseberries, and Raspberries.—Bearer of all the above should be planted as soon as possible, bearing in mind that rich ground, well trenched, is the ground work of success.

Vine Baders.—If not top dressed in the fall, should now be done; the vines pruned, the borders forked, frames, where used, repaired, if needed, and the vines trained before the buds swell.

Strawberries.—Beds of the above now need attention; fork deeply between the rows; the mulching recommended in the fall will be sufficient manure for the present.

English Peas.—Keep up a succession of these, and prepare the ground for seed in March of the more tender vegetables. Irish Potatoes should be planted without delay.

Asparagus should be top dressed, if not done in the fall, and the beds forked over. Salt is an admirable manure for this plant.

Cabbage.—Where plants are raised in a hot bed, get them as hardy as possible before planting out. A ridge, thrown up and the plants placed on the south side, will be found beneficial.

W. H. HAMILTON,
Landscape Gardener,
Raleigh, N. C.

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14—tf.

Raleigh, Nov. 26th.

PROSPECTUS

OF THE

NORTH CAROLINA PLANTER,

FOR 1860.

JAMES M. JORDAN, Agricultural Editor.
JOHN W. WOODFIN, *Associate Agricultural Editor.
S. W. WESTBROOK, Editor Fruit Department.
W. H. HAMILTON, Editor of Gardening and Floral Departm't.

The Publisher of the N. C. Planter, after two years of anxiety and labor, duing which he has endeavored to furnish the Agriculturists of North Carolina, with a reliable and valuable *home journal*, adapted especially and peculiarly to the soil, climate and products of our own State and the States adjoining, now presents them with his Prospectus for the third year.

He takes pleasure in calling attention to the Corps of Editors secured for 1860. They are all men capable of instructing their readers, both from scientific knowledge and practical experience, in the several departments over which they will preside ; hence the readers of the North Carolina Planter will always be sure of a large supply of *original* matter, expressly appropriate to the various crops cultivated in our State, manner of cultivation, improving and renovating our soils—in a word every thing pertaining to the interest of North Carolinians engaged in the noble pursuits of husbandry, in the farm, garden, nursery and orchard.

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The present No. begins a new year and the third volume. From the interest manifested for the continuance of the publication, and the strong promises made on the part of many of the Agriculturists of the State, we confidently expect a liberal support. Three thousand subscribers will *permanently* sustain the publication—and we hope to have this many on our list at a very early day—but we ought to have five or ten thousand before the year 1860 shall expire. We are sure if we had that many subscribers, the agricultural energy, enterprize and prosperity of the State—individual and collective—would increase a hundred fold.

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☞ We earnestly appeal to all friends of our Planter to aid in increasing its circulation. All Communications to be addressed to

A. M. GORMAN, Publisher,
January, 1860. Raleigh, N. C.

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*Our Associate Editor we have procured from the Western portion of the State, so that every section may be represented in the Editorial departments, and thus have some portions of its pages especially adapted to the varied soils and climates of North Carolina. We have been very fortunate in securing the services of so able an Agriculturist as Mr. Woodfin.

LM Ludwig

MARCH NUMBER, 1860.

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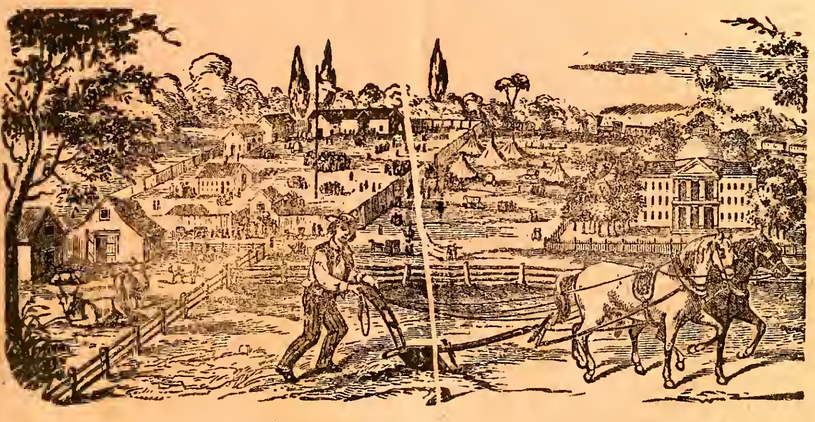

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VOL. 3. RALEIGH, N. C., MARCH, 1860. NO. 3.

Cotton.

(CONTINUED FROM OUR LAST)

THE MODE OF PLANTING.—" Here we have many plans, all setting up claims to some peculiar merit. With the preparation which I have indicated, it would hardly be necessary to stop to discuss the relative merits of these modes, or seek to do more for the accomplishment of our purpose than to select some one, which we know to answer well. I therefore advise the use of some small and very narrow plow for the opening furrow. This should be run in the centre of the bed, opening a straight furrow of uniform size and depth. In this the seed should be strewed by some careful hand, scattering them uniformly along the furrow, just thick enough to secure a good stand the whole length of the row. These I would cover with a board, made of some hard wood, an inch or an inch and a half thick, about eight inches broad, and thirty inches long, beveled on the lower edge so as to make it sharp, slightly notched in the middle so as to straddle the row, with a hole bored in the centre one inch from the upper edge, and screwed on the foot of a common shovel or scooter-plow stock. This wooden scraper and coverer, when drawn over the row, covers the seed nicely, leaving a slight elevation to prevent the settling of water, and dresses the whole surface of the drill. Thus all clods or obstructions are removed, and a clean space is left wide enough for the passage of the plow in the first working between the young cotton and the rough land. This is an advantage of much importance with a crop so tender and small as cotton at this stage.

CULTURE.—" As soon as the young cotton is up to a good stand, and the third and fourth leaves begin to appear, the operation may commence. In lands which are smooth and soft, I incline to the opinion, that the hoes should precede the plows, chopping into bunches, passing very rapidly on, and let a careful plow-man follow on each side of the drill, throwing a little light dirt into the spaces made by the hoe, and a little also about the roots of the cotton, *covering, and leaving covered*, all small grass which may have sprung up. This is, indeed, the merit claimed for the operation that, after the hoes have passed, the plows come on and effectually cover and destroy the coat of young grass then up. This is known to practical planters to be the crop of grass which escapes the hoe, and does mischief to the cotton. But when the land is so rough as to endanger the covering of the cotton with the plow, the operation must be reversed, and the hoes follow the plows. All that is now proposed to be done is a very rapid superficial working, reducing the crop to bunches, soon to pass over and return again, for a more careful operation. This should be done as soon as possible, as will be indicated by the necessities of the case. The grass and the weeds must be kept down, and the stand of cotton reduced. At this first working, unless in lands already very soft, I should advise the siding to be close, and to be done with some plow which would break and loosen the earth deep about the roots of the young plant. Others may theorize as they choose, but with a plant sending out a tap-root, upon which it so much relies, and striking so deep into the earth, as that of cotton, I shall insist upon its accommodation, by providing a soft, deep, mellow bed, into which these roots may penetrate.

"In the second working, the plows should in all cases go before the hoes, and in all lands at all tenacious or hard, let the work be deep and close again, and the middle of the rows also be well broken up at this time. Now the hoes have an important and delicate duty to perform. The cotton is to be reduced nearly to a stand, though it is now rather early to be fully reduced. It is, perhaps, best to leave two stalks where one is intended to grow. The young stalk is very tender, and easily injured by bruises and skins from rough and careless work, and it is much better to aid a little sometimes with the hand in thinning, than to spoil a good stand by bruises from the hoe. The cut-worm and the louse are charged with many sins, which ought to be put down to careless working at this critical stage of the crop. The distance to be given I have before stated, and, in the first operation of bunching, this ought to be looked to, and the spaces regulated accordingly. At this second passing over, the hoes must return a little soft dirt to the foot of the stalk, leaving it clean and supported. If this work is well done, the weed will grow on, without any necessity for further attention for some twenty days or three weeks, when the plow should return again. At this time, some plow should be used next the cotton, which will tumble the soft earth about the root, covering the small young grass which may have sprung up since the last working, but the plowing should be less close, and shallower than the former working.

"The hoes have much to do in the culture of this crop, and must be prepared to devote pretty much all their time to it, constantly passing over, and perfecting that which cannot be done with the plows, by thinning out surplus stalks, cleaning away remaining bunches of grass, stiring about the roots of the plant, and, if need be, adding a little earth to them. It is difficult, in a treatise of this sort, to say how often, and in what manner, this crop should always be worked, when the character of the season, and the difference in the land, must have necessarily so much to do in settling this question. The general rule must be, to keep the earth loose and well stired; the early workings to be deep and close; and as the crop comes on, and the fruit begins to appear, let these workings be less close, and shallower, keeping the soil soft and clean. It is of great importance to work this crop late, and it should not cease until the branches lock, or the cotton begins to open. I do not consider that it is necessary to pile the earth in lage quantities about the roots of the cotton, but think the tendency of all the workings should be to increase the quantity.

SELECTION OF SEED.—"The selection of seed is an interest not to be disregarded. We have been humbugged a great deal by dealers and speculators in this article, yet we would greatly err to conclude that no improvement could be made. We should, however, save ourselves from this sort of imposition, and improve our own seed, by going into the field, and picking each year from some of the best-formed and best-bearing stalks, and thus keep up the improvement. Great benefits may often be derived by changes of seed in the same neighborhood, from differences of soil, and occasional changes from a distant and different climate, may be made to great advantage.

PICKING.—"The picking of cotton should commence just as soon as the hands can be at all profitably employed—say as soon as forty or fifty pounds to the hand can be gathered. It is of great importance not only to the success of the work, but to the complexion and character of the staple, to keep well up with this work, so that, as far as possible, it may be saved without exposure to rain. The embarrassments to picking when once behind, and a storm or heavy rain shall intervene, mingling it with the leaf, and tangling in the burr, are just as great as to get behind in the cultivation of the crop, when much additional labor will be required to accomplish the same object.

"In the early pickings, when the seeds are green, some sunning is indispensably necessary; but, after some maturity and dryness, very little will be required. This must be determined very much by circumstances; but dew or rain-water should always be removed by drying upon the scaffold, before the cotton is bulked in the house. With proper care and attention, great improvement may be given to the complexion of the staple by a little heating in the bulk, extracting the oil from the seed, and imparting a slight cream to the color. This process, however, must be conducted with great caution and care, lest the heating proceed too far, and injury be done. It is easily checked by stirring and exposure to the air. It is an advantage to all cotton to lie in the bulk before ginning, and we doubtless often lose much of this benefit for want of sufficient house-room. Indeed, I think it a very common error in our plantation arrangements, not to build houses for this special object. The cotton, when ginned, ought to be so dry that the seed will crack when pressed between the teeth. It is often ginned wetter, but just as often the cotton samples blue. A gin should be used which will neither cut nor nap the cotton, but send out the fibre straight and smooth, so that when the samples are drawn, they will have the appearance of having been carded. This is greatly promoted by the largely increased number of brushes now added by the best manufacturers.

Packing.—"The packing should be in square bales; and, without reference to freight, or any of these mere incidental influences. I think the weight of the bales should be fixed at about four hundred or four hundred and twenty-five pounds—to be in two breadths of wide bagging, pressed until the side-seams are well closed, or a little lapped, and then secured with six good ropes, and heads neatly sewed in; so that, when complete, and turned out of the press, no cotton should be seen exposed. These packages should be nearly square, for the greater beauty of the bales, but, still more, for the greater convenience with which they may be handled and shipped, saving the necessity for tearing the bags, and giving a better guarantee that they will reach a distant market in good order." *Col. Chambers's Essay*, pp. 16–20.

Remark.—I do not pretend to endorse every positon taken, and opinion expressed, in the above compilation. The writers are intelligent and responsible men, and have had personal experience in the matters about which they write. I have never lived in a cotton-growing region; and, therefore, have had but little opportunity of personal observation in the culture of this important crop. But, in addition to what has been given, I will venture a *suggestion*, based upon my general knowledge of the cultivation of the soil. One of the writers quoted speaks of *rest*, as "the grand restorer, and the rotation chiefly required in the cultivation of cotton." Now I venture to suggest a *pea fallow*, with gypsum and ashes, as probably much superior to "rest" for any soil. "Rest" can never restore to land what the crops are every year carrying away; and unless the rest is *employed* in the production of something which will collect organic fertility from the air, and improve the chemical condition of the mineral matter, which need elaboration, it can certainly do but little for the *ultimate* improvement of the land.

The importance of the cotton crop in the United States to England is best shown by the fact, that besides providing clothing for her whole population, she exports £40,000,000, annually, of the manufactured articles to other countries, being about one third of her entire exports. Any serious interruption, therefore, to a manufacture in which so many millions of consumers are interested, would be a world's calamity. In forty-four years, the consumption in Great Britain has increased from 90,000,000 of pounds to 1,000,000,000 lbs.

The imports of cotton into Great Britain last year amounted to 1,000,000,000 lbs.

of which 900,000,000 lbs. were received from the United States. American cotton is King of England, Scotland and Ireland. The United Kingdom is aware of her dependence on this country, so much so, that John Bull may sometimes quarrel with Brother Jonathan, but never seek a fight.
ED.

Indian Corn.

(CONTINUED FROM OUR LAST.)

AFTER-CULTURE.—The points of first importance in the culture of corn, after the planting has been properly executed, are, *first*, to keep the ground clear of everything which has the same period of growth, except the crop; and *secondly*, to stir the soil thoroughly, and to as great a depth as possible, during the early stages of the corn's growth. In clay soils on which a strong grass sod has not been turned down a good plan is to run a coulter made like that of the sub-soil plow about twice on eaah side of the row, soon after the corn comes up. The middle spaces may be stirred with the shovel-plow or cultivator. The process of hoeing and thinning may then follow. After this, another plowing will generally be sufficient.

Many farmers, especially in the South, prefer the plan of running a small mouldboard plow as near as possible, at the first working, in such a way as to throw the earth off from the corn; following with the hoes, to cover again any roots that may be too much exposed. This is followed by a second use of the same plow, run in an opposite direction, so as to throw the earth back again towards the row. This method has some advantages, and is adopted in the cultivation of some other crops. In the first place, it gives free access of air to the soil about the roots of the crop, and gives the portion turned twice with the plow a complete stirring. Secondly it destroys completely the first weeds and grass which springs up near the rows.

As corn approaches the period of tasselling, the roots spread with great rapidity, after which deep tillage will, by breaking the roots, generally result in a degree of injury greater than any benefit arising from stirring the soil. All work, after the corn has grown to the height of four or five feet, should be done with the cultivator and hoe. The land may thust be kept clean, while the roots are left free to run out on all sides in quest of food, until they form a network entirely across the spaces between the rows.

HARVESTING.—The harvesting of Indian corn has reference to two points; (1) the preservation of the fodder, and (2) the preservation of the grain. For securing the fodder, there are two methods adopted extensively in almost all parts of our country, both of which are so familiar to every one living in a corn-growing region, that a very brief notice of each, with its advantages and disadvantages, will be all that is necessary.

Blading and *topping* are performed where the securing of the fodder within the smallest compass, and in the most portable form, is desired. The blades below the ear, with the first one above, are stripped from the stalks with the hands, and placed in handfuls between stalks standing close together, until they are sufficiently cured to be tied up in small bundles, and secured in stacks or under shelter. The blades are in order for being tied, or in any way handled, only in the mornings and evenings, and on cloudy days. If they are handled in dry weather, especially if it is windy, there is always considerable loss from their breaking into fragments.

Topping consists in cutting off the portion of the stalks above the ear. The tops thus cut are allowed to lie in small heaps, until they are partially cured. They are then tied into bundles, and several of these put together so as to form shocks. In this condition they stand till they are perfectly cured; that is, until the stalk, as well as the blade part, has become dry enough to prevent moulding when placed in larger bulk. The next step is to secure them against the weather by stacking, or putting them under a shelter.

In parts of the country remote from high markets, and where provender is abundant, the blades are usually regarded as not worth gathering. The tops, being much more valuable, are frequently cut, while the blades are left ungathered.

Both blades and tops, when secured without much exposure to rain, are about equal in value to the same weight of good hay. But to secure the full forage value of tops, they must be cut into small fragments, so that the animals to which they are fed may be able to masticate them easily. I have found, when corn tops are finely cut, and mixed with a little meal, and water enough to make the meal adhere to them, that my horses consume almost every fragment, and thrive remarkably well.

After topping, the corn is left upon the stalks until it is sufficiently dry for the crib. It is then either pulled off with the shuck (husk)* still on it, and taken to the barn to be stripped and thrown into a well ventilated crib, else shucked upon the stalks, the shucks and stalks being left together upon the ground.

The *second* method is to cut the stalks off at the surface of the ground, as soon as the ears have become hard, and set them up in small stacks (or shocks,) to be cured by the air which cirlulates freely through them. In this condition the crop stands till the grain is dry enough to be put into cribs. It is then shucked, generally without being pulled off the stalk. The fodder including the shucks, is then most commonly fed to cattle without cutting. The blades, shucks, and a little of the slender part of the stalk are eaten, while the remainder is trodden down, and forms valuable litter.

A *third* method is that of allowing the whole plant to stand untouched until the corn is ready to be gathered. Then after the crop has been removed, cattle are allowed to gather what they will of the standing fodder. In this case, the fodder is of little value.

In the Western States, where much larger crops are cultivated than could be secured by either of the methods above given —where the market is distant, or the great abundance of corn makes the price low, and where the object is to concentrate the crop into the more portable form of beef and pork, the beef cattle are turned into the field of standing corn to eat as much as they choose, and tread down at pleasure. Hogs are next made to follow and gather up the remainder. Sometimes hogs alone are allowed to gather the crop. Of course this wasteful method can only be practised where the price of corn is low in in comparison with the price of labor.

Advantages and Disadvantages.—These several methods of harvesting corn have their advantages and disadvantages; and the one to be pursued must be determined upon by each farmer for himself, according to the circumstances by which he is surrounded. The method has the advantage of securing the *fodder* in the most portable and most valuable form; and if the locality is one in which such provender commands a high price, this is no inconsiderable part of the crop. It is especially desirable in places where hay is not easily made. But it has the disadvantage of making a lighter crop of grain than either of the other plans given. The reason of this is, that the growth of the corn ceases almost entirely as soon as the blades and tops are removed. Although the grains may have become firm enough for the crop to be fully dried at gathering time, they shrink more, and will be found to be more loose upon the cob, than in the case in which the whole plant has been left standing for the same length of time, showing that it is not the more complete drying in the one case which makes the grains appear lighter than in the other; for in these two cases the opportunities for shrinkage, under the influence of drying, are the same.

The rule given in §468 for cutting wheat, is not so fully applicable to corn. Wheat has its highest value before the stalk is fully ripe; but corn has not reached its highest value until the grains have become fully hardened, and glazed upon the surface. This is not generally completed until the blades below the ear are nearly all dead, the shuck partially brown, and the upper blades beginning to die rapidly. In that state the corn may be topped without injury, or may be cut off and removed from the ground. But the value of the fodder is then greatly diminished. The bran of corn does not, like that of wheat, increase much in thickness from being allowed to stand until it is "dead ripe."

The method has the advantages of securing the whole stalk for both fodder and litter, while the corn is well secured, provided the stacks are made small, so that the air can circulate freely, and prevent moulding. If the corn is to be immediately succeeded by a wheat crop, this method has the additional advantage of clearing the land for the plow. In fact, it is the only method by which the ground can be brought into a good condition to be seeded down with wheat. The chief disadvantage attending this plan, is the heavy labor of cutting and stacking the corn, and the inconvenience of managing the bulky mass of fodder which it gives.

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* "Shuck" is the word in common use in the South and South-west.

The advantages are, first, the saving of labor, in case it can be more profitably expended on something else than the gathering of fodder; and, secondly, the securing the heaviest product of *grain* which the soil, culture, etc. could produce. The disadvantages are, first, the almost entire loss of the fodder; and, secondly, the greatly inferior value of the stalks for improving the soil, below what would result from using them for litter in the barn-yard. The latter objection to both plans, may be removed by gathering the stalks after the corn has been removed, and using them as litter.

Labor-saving is the only advantage the last method can claim. It saves the labor of gathering the crop, and leaves the manure produced in feeding spread upon the land, without the labor of hauling. Its disadvantages are too obvious to require even to be mentioned.

CRIBBING.—The crop should be allowed to become as thoroughly dry in the field, as the season and the time required for gathering will justify. Every experienced farmer knows how readily corn becomes musty, when thrown into a large bulk in a damp condition. This often takes place around the cob, when the external condition of the ear indicated entire dryness. The cob parts with its moisture very slowly, and generally contains a great deal when the corn is cribbed. To guard against damage from this source, cribs should be well ventilated. The walls should have numerous openings for the free admission of air. The floor should be elevated at least a few inches (or, still better, a foot or two) above the ground. If the floor is made close, strips should be put across it which will hold up the corn sufficiently to allow a free circulation of air. If the body of the crib is lage, poles or laths extending across from side to side, at various points, especially for the first few feet above the floor, will aid in the circulation of air, and consequent drying of the corn.

Tobacco.

(CONTINUED FROM OUR LAST.)

LISTING[*] AND HILLING.—Listing here consists in throwing up small parallel ridges with the mould-board plow, at proper distances for the rows of tobacco. These ridges are often called "lists." The distance between the tops of these—or, in other words, the distance between the rows of tobacco—should be from 3½ to 4½ feet, varying with the soil and variety cultivated. The width should always be sufficient to allow the hands to pass between the rows, when the crop is fully grown, without danger of breaking the leaves. To secure uniformity of distance between the lists, it is best to lay off the ground first with single furrows, at the required distance, and upon each one of these, as a central line, throw up the soil equally from both sides, with the mould-board plow, until all the soil has been thrown out from the middle of the intervening spaces. The lists may then be divided into sections, out of which the hills are to be formed. The hills should be about 3 feet apart in the rows. This distance can be regulated, with considerable uniformity, by running a shovel-plow across the lists at right angles, making cross-furrows three feet apart. The sections into which the lists, or ridges, are thus divided, are then heaped up in the form of sharply-peaked, conical hills, thus to remain until they are to receive the plants.

The hilling serves several important purposes; It elevates the plant, so as to prevent the points of its lowest leaves from reaching the ground so readily, and becoming soiled. On soils which retain much water in wet seasons, the plants are kept with a large portion of their roots above the water which settles along the furrows. But if wet seasons continue long, the crop is always injured, notwithstanding the elevations of the hills. The air has a more free circulation beneath the leaves when they become large, if the plants are thus elevated.

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[*] "*Listing*," in Southern agriculture, denotes: The dividing of land into narrow strips by furrows, as in preparing it for planting corn. The same term is used to indicate the process of throwing the surface soil up into small parallel ridges, out of which the tobacco hills are afterwards f

PLANTING.—The season best suited for field planting, in Va. (or N. C.) is from the middle of May till about the middle of June, or later, in the southern part of the State. The process of planting can be carried on only when there is a considerable quantity of moisture in the hills, else just before there is a certain prospect of immediate rain; that is, just before or just after a rain. The hills are prepared to receive the plants, by having their conical tops cut off with the hoe, and the flat surface thus formed, pressed down or struck with the lower face of the same instrument, so as to form a compact soil to receive the roots of the plant. While this operation is performed by one set of hands, others should be engaged in setting the plants. A careful man should draw the plants from the bed, which can be done with the hand alone, if the soil of the bed is loose and moist; but if the bed has become somewhat hard, as often happens where there is much clay in the soil, the aid of a sharp flat instrument to pass under the roots may be necessary, as it is important to guard against bruising either the top or root of the young and tender plant.

Some of the weaker hands take the plants in baskets, and, following those engaged in flattening the hills, drop a plant at each hill; while others follow with sharpened sticks or pegs, with which they make holes in the centres of the hills, to receive the roots. Care should be taken to have the root extend streight downward in the hole, and not doubled back upon itself: it is then more certain to grow, and to grow well.—The plant should be inserted low enough to have all the root completely covered, but not so low as to let the bud be below the surface. After the root has been inserted in the hill, the soil is firmly pressed around it. If the ground is not very moist, or if the sun is very hot, at the time of planting, a leaf of some kind, or a little handful of broken straw or chaff, should be laid over each plant till it has taken root.

The same ground should be passed over at every good planting season, for the purpose of *replanting*. Some plants of the first setting will have died, while others will have been destroyed by cut-worms. To secure a plant to every hill, then, the replanting may have to be repeated several times.

Another method of planting, differing a little from that just described, is said to be pursued by a very intelligent and successful planter in Buckingham county. His land is prepared and listed in the method just given; but instead of making hills, he lets the ridges (lists) stand as they are thrown up by the plow, until he is ready to plant. The tops of the lists are then flattened, and at the same time compressed, by running a one-horse roller along them from end to end. The roller is made sufficiently long to rest upon two lists at the same time, while the horse that draws it walks between. There is, moreover, an attachment to the roller for marking off the stations for the plants, at a uniform distance. This consists of pegs projected from the surface of the roller, and so situated that each one will make a hole for a plant at every revolution; while those at the same end are just as far apart on the surface of the roller, as the plants are to be distant in the rows If the diameter of the roller is near *two feet*, the circumference will be about *six*. Now two pegs, placed on opposite sides of a roller of that size, would, during its revolutions, mark off spaces of three feet each; that is, two spaces for every revolution. Each end of the machine may thus be made to flatten the top of a list, and at the same time leave holes prepared to receive the plant. The difficulty of making a single peg always strike the centre of the list as it comes around, may be obviated by having several pegs near together, in a line running lengthwise. Some one of these will be certain to leave a hole near enough the middle of the list for the plant. The plants are next dropped and set by hands following the roller.

This method has the advantage of substituting *cheap* horse-labor for more expensive hand-labor; but it may have more than compensating advantages. In rough or stumpy land, it would be impracticable. It omits the neat hoe-dressing applied in hilling. The plants are in rows in only one direction, and, consequently, cross-plowing cannot be done. Still, the plan is worthy of a fair trial, and on many fields may greatly economize labor. The substitution of horses or mules for men, is a point at which all farmers should aim, wherever such substitutions can be made. The hire of a first-class hand for one year, would buy a good mule; while the expense of keeping the hand one year would feed the mule for two years. Then in many operations the mule, with a little *management*, can be made to do the work of two or three good hands.

CULTURE.—The two leading objects to be kept in view in the culture of tobacco, are the same as those mentioned in connection with the culture of corn: All weeds and grass must be kept down; and the ground must be kept mellow and well aired. The culture should be commenced as soon after planting as possible, and kept up constantly until the plants are too large for its continuance. Within a week or two after planting, the soil on the surface of the hills may become crusted, especially in clay soils; also, grass and weeds may begin to make their first appearance. In either case the hoe should be applied, to scrape down the surface of the hills. A clean, loose surface will thus be formed around the plants. This should be followed by a deep plowing, which should be made so close to the rows as to cut down a considerable portion of the hills, the mould being thrown out into the spaces between the rows. Guano, or a mixture of guano and salt, should then be applied. By a subsequent plowing within a week or two, the soil should be thrown up again to the rows, and the hills again dressed up with the hoes. The kind of plow used must be determined by the character and condition of the soil. To a firm soil, the coulter should be first applied to as great a depth as possible; then the shovel, or small mouldboard, for throwing the earth to and from the hills. In short, the best means should be adopted for accomplishing the two objects above mentioned.

PRIMING AND TOPPING.—When the plant has grown to the height of two or three feet, a round bud will make its appearance in the centre of the plant. This is the *flower-bud*, and is called the "button" in some parts of Virginia. At this period of growth, some of the lower leaves should be pulled off, so as to leave the stalk naked for five or six inches above the ground. The stripping of these lower leaves is called "priming." At the same time that the priming is done, the flower-bud is broken or nipped off with the thumb and finger. If the plant is sufficiently large, it may be topped before the flower-bud appears, by nipping out the central leaf-bud. "There is great difference of opinion as to the proper height of topping. From 8 t 20 leaves are recommended—the latter fo manufacturing. If the tobacco is prett forward and the land rich, at first, prim off just enough of leaves to hill up the to bacco well, and top to 12 or 14 leaves.— Continue to top to 12 leaves until 1st o August, then to 10 until middle of August and from that time until 1st of Septembe top to 8, afterwards to 6."* If the top ping were omitted, the flower-bud woul soon be developed into a branching top, fu of clusters of flowers, from which the see are afterwards produced.

SUCKERING —Soon after the topping i done, the axillary buds at the bases of th leaves begin to grow rapidly, and, if l alone, from branches of the main stalk.— They are called "suckers," and must b broken out as soon as they are large enoug to be caught with the thumb and finger This process has to be repeated from tim to time, as new suckers make their appea ance. Meantime the green worm will ha commenced its ravages, and must be car fully picked off and destroyed; otherwis it will soon disfigure and greatly injure th crop.

The *philosophy* of priming, topping, an suckering is easily understood when we r fer to what has already been said on th physiology of plants. All parts of the pla are designed to aid in its mature growt and ultimate production of seeds. As t period approaches for maturing the see nearly all the vital energy of the vario organs seem to be directed towards, and e pended upon them. If the first flower-b is removed, the natural vigor of the plant not destroyed, but only diverted towar the leaves and axilary buds, strengtheni the former, and causing the latter to spri up as suckers. But when the suckers removed, the whole vigor of the plant concentrated in the remaining leaves. choice of the most perfect leaves is made "priming off" those nearest the earth, a which not only would not themselves att a vigorous growth, but would exclude t air and light too much from the mid leaves of the plants, which are always t most vigorous. The number of leaves l in topping is determined in part by t apparent strength of the plant, and in p by the length of time it has for maturing its leaves. The more forward plants have a longer season of growth after topping, and can hence bear a greater number of leaves; while the latter ones must be topped lower.

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* Southern Planter, Nov. 1854.

Cutting.—The maturity of the plant, and consequently fitness for cutting, is indicated by the points and edges of the leaves curling downward, the leaf becoming thick and brittle, and its surface assuming a yellowish spotted (piebald) appearance in some variety, and on some soils, especially new land; and a fine glossy appearance in others. At this stage, the plant contains more of those ingredients which subsequently give value to it, than at any period either earlier or later. It should then be cut, and not till then, unless it is becoming fired,* or is in immediate danger from frost. The cutting consists in splitting the stalk with a sharp, thin-bladed knife, down nearly to the lowest leaf, and then cutting it off just below this leaf. As the plants are cut, they are inverted between the hills, and allowed to remain in that position a few hours, until they are sufficiently wilted to be handled without being broken. They are then collected and placed (8 or 10 together) upon sticks, and hung upon scaffolds in the open air, or in the tobacco barn.

Curing.—The process of curing is a matter of the highest importance. On it depends, to a very great extent, the market value of the crop. It should, therefore, be attended to with great care. The modes adopted vary somewhat with the end for which the crop is designed. "Tobacco for manufacturing purposes should be exposed to the air on scaffolds; and if ripe and sun-cured, it will have that sweet, aromatic flavor so peculiar to good tobacco. * * * After cutting, it should be carried to the scaffold for the purpose of sweating, by which process the green color is expelled, and the tobacco becomes yellow, which is far preferable." † It should then be removed to the barn, to be fully cured by firing. "If time will allow, and the weather is not threatening, I prefer housing the tobacco without scaffolding. It will yellow as well, crowded in the barn, as on the scaffold; and all danger of injury from rain is avoided, as well as the loss of some from the effects of the sun. * * * It is carried from the field, crowded as closely as possible on the tiers, and permitted to remain from 6 to 8 days, or longer, until it is yellowed sufficiently; then it should be opened, and the sticks arranged in the barn for firing. The sticks should be placed from 6 to 8 inches apart, and may be placed a little closer in the roof than in the body of the barn." *

Chemistry.—During the process of curing, tobacco undergoes important chemical changes. Its peculiar properties are owing to the presence of several remarkable compounds, of which one called "nicotine," and another called "nicotianine," are most important. *Nicotine* is an alkaline substance, and has the form of an oily liquid when separated from other compounds. In its concentrated form, it is a most deadly poison; but when taken in the dilute condition in which it reaches the stomach in chewing, or the lungs in smoking "the weed," its effects are greatly modified.—The quantity of nicotine varies in the different qualities of tobacco cultivated in the different countries. The Havana has about 2 per cent of nicotine, hence its mildness. Virginia (best manufacturing) tobacco has 5 or 6 per cent, while the stronger varieties have about 7 per cent. The French tobacco has from 3 to 8 per cent of nicotine, according to the region in which it grows. *Nicotianine* is a more volatile substance than nicotine, and is more odoriferous. The pleasant odor of good tobacco is due to this compound chiefly.

The nicotine and nicotianine do not exist in the green leaf, but are formed during the curing of the tobacco, from substances already in the plant in variable quantities. If the leaves are dried very rapidly, these compounds are not fully formed; and if the heat is raised too high in firing, they may both disappear to some extent, by being either volatilized or decomposed. They both contain nitrogen, and, like all other compounds containing that element, are readily decomposed. Hence the firing should be commenced at a low temperature, which should be gradually increased, and may be advantageously suspended at night. The temperature should never rise above 120°.

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* The "Black Fire" is a disease which is often very destructive to the tobacco crop. It produces decayed spots over the leaves. A mixture of *common salt* with guano is recommended as a preventive.—*Southern Planter*, May, 1858.

† T. D. Edmunds.

* Wm. H. Jones, of Mecklenburg.

Tobacco-barns should be closely planked, or in some way made close, having windows for ventilation, which may be opened or closed at pleasure. Smaller, and hence safer fires, will be sufficient in such houses. Curing yellow tobacco with *charcoal* at a high temperature, kept up day and night, is recommended.*

"It is best to fire all grades of *shipping* tobacco, and cure it a dark nutmeg color. * * From 24 to 36 hours after cutting, if the tobacco is ripe—if not, from 36 to 48 hours, according to the weather—seems to be about the right time to commence firing. Begin with small fires, and bring the tobacco to a proper state, and then increase the fires."†

STRIPPING, &c.—After the tobacco has been fully cured, the next step is to strip the leaves from the stalks, and tie them up in little bundles ("hands,") to be pressed ("prized,") into hogsheads for market. The two points requiring most attention in stripping are, first, to have the tobacco in proper "order;" and, secondly, to assort carefully, so as to separate the different qualities.

The tobacco is in "order" when the leaf, or rather the blade of the leaf, is sufficiently moist to be pliant, and yet the stems dry enough to break off readily from the stalk. This condition can be secured only in the beginning of a spell of damp weather. After the weather has continued damp for some little time, the moisture penetrates the stems, as well as the thinner parts of the leaves, making them too tough to be easily broken from the stalks, and rendering them liable to mould when wrapped together, or when the tobacco is laid down "in bulk." If the stems have thus become pliant, the tobacco is in "too high order," and must be thoroughly dried, and allowed to come in order again before the stripping can be done.

A large quantity may be kept in order for stripping, by packing it down when in the proper condition, upon an elevated platform extended along one side of the barn. This is called "bulking." The tops of the plants must be lapped over each other in the middle of the pile, the lower end of the stalks being turned outward. The whole mass must then be covered up with straw, or something else, wich will preserve it in order until it can be conveniently stripped, which is generally at times when the weather is unfavorable for out-door work.

The business of *assorting* requires both care and judgment. It should therefore, be the business of the most experienced and trustworthy hands. It is accomplished chiefly during the process of stripping, but may be made more complete by the hands engaged in tying, attending properly to the sorting out of such leaves as do not properly belong to the quality upon which they are engaged. The number of grades or qualities must be determined by the purpose for which the crop is designed. Where the only object is to make the dark shipping tobacco, the best leaves are assorted, according to size and quantity, into first and second quality of "leaf;" while the lower leaves of the stalks, together with any others that may be injured or ragged, form first and second qualities of "lugs."

If the crop is designed for the manufacturer, the color, as well as other qualities, must be taken into account. The dark and yellow colors must be first separated into two general classes, and then each of these again assorted according to their several "qualities."

When the assorting and tying have been completed, the bundles should be "bulked down," unless the stems are found to contain so much moisture as to be in danger of moulding. It should then be hung up on the sticks, and dried. It is always thoroughly dried before prizing. Then, at the first favorable time before prizing, it should be again packed down in bulk. The bundles should be carefully straightened in packing down; and, when it is afterwards transferred to the hogsheads, the same, or still greater care, should be taken to have every leaf straight, and in its proper place. The hogsheads usually contain about 1300 or 1400 pounds.

The price of tobacco depends very much upon *the skill with which it has been cured, and the care bestowed upon the assorting, tying, and subsequent handling.*

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* See Southern Planter, Oct. 1858.

† Wm. H. Brown, Richmond.

Transactions of the N. Y. State Agricul'al Society.

Experiments on Indian Corn.

B. P. Johnson, Esq.—Dear Sir:—I send you the results of some experiments with artificial fertilizers on Indian corn. The soil on which the experiments were made is a light, sandy loam. It has been under cultivation for upwards of twenty years, and so far as I can ascertain has never been manured. It has been somewhat impoverished by the growth of cereal crops, and it was thought that for this reason, and on account of its light texture and active character which would cause the manures to act immediately, it was well adopted for the purpose of showing the effect of different manurial substances on the corn crop.

The land was a clover sod, two years old, pastured the previous summer. It was plowed early in the spring, and harrowed till in excellent condition. The corn was planted May 23, in hills 3½ feet apart each way.—Each experiment was made on the one-tenth of an acre. It would doubtless, have been better to have had larger plots, but I was unable to get sufficient land of similar character to make the requisite number of experiments on a larger scale. Each experiment consisted of 4 rows with one row between each plot without any manure.

The manures were applied in the hill immediately before the seed was planted, with superphosphate of lime, and with plaster (gypsum or *sulphate of lime*). The seed was placed directly on top of the manure, as it is well known that these manures do not injure the germinating principle of even the smallest seeds. The ashes were dropped in the hill, and then covered with soil, and the seed planted on the top so that it should not come in contact with the ashes. Guano and sulphate of ammonia were treated in the same way. On the plots where ashes and guano, or ashes and sulphate of ammonia, were both used, the ashes were first put in the hill, and covered with soil, and the guano or sulphate of ammonia placed on the top and also covered with soil before the seed was planted. The ashes and superphosphate of lime were also treated in the same way. It is well known that unleached ashes, mixed either with guano, sulphate of ammonia, or superphosphate, mutually decompose each other, setting free the ammonia of the guano and sulphate of ammonia, and converting the soluble phosphate of the superphosphate of lime into the insoluble form in which it existed before treatment with sulphuric acid. All the plots were planted on the same day and the manures weighed and applied under my own immediate supervision. Everything was done that was deemed necessary to secure accuracy.

The following table gives the results of the experiments:

Table showing the results of Experiments on Indian Corn, made in 1857, *near Rochester, N. Y.*

No. of the plots.	Descriptions of manures, and quantities applied per acre.	Bushels of ears of sound corn per acre.	Bushels of ears of soft corn per acre.	Total No. of bushels of ears of corn per acre.	Increase per acre of ears of sound corn.	Increase per acre of ears of soft corn.	Total increase per acre of ears of corn.
1	No manure,......	60	7	67			
2	100 lbs. plaster (gypsum or *sulphate of lime*,)	70	8	78	10	1	11
3	400 lbs. unleached wood ashes and 100 lbs. plaster (mixed)	68	10	78	8	3	11
4	150 lbs. sulplate of ammonia,...	90	15	105	30	8	38
5	300 lbs. superphosphate of lime,..............	70	8	78	10	1	11
6	150 lbs. sulphate of ammonia and 300 lbs. superphosphate of lime (mixed)	85	5	90	25	......	23
7	400 lbs. unleached wood ashes (uncertain).....	60	12	72	......	5	5
8	150 lbs. sulphate of ammonia and 400 lbs. unleached wood ashes (sown separately)............	87	10	97	27	3	30
9	300 lbs. superphosphate of lime, 150 lbs. sulphate of ammonia and 400 lbs. unleached wood ashes,........	100	8	108	40	1	41
10	400 lbs. unleached wood ashes,	60	8	68	......	1	1
11	100 lbs. plaster, 400 lbs. unleached wood ashes, 300 lbs. superphosphate of lime, and 200 lbs Peruvian guano,......	95	10	105	35	3	38
12	75 lbs. sulphate of ammonia,...	78	10	88	18	3	21
13	200 lbs. Peruvian guano,..........	88	13	101	28	6	34
14	400 lbs. unleached wood ashes, 100 lbs. plaster, and 500 lbs. Peruvian Gnano,..........	111	14	125	51	7	58

The superphosphate of lime was made on purpose for these experiments, and was a pure mineral manure of superior quality, made from calcined bones; it cost about 2½ cents per pound. The sulphate of ammonia was a good, commercial article, obtained from London, at a cost of about seven cents per pound. The ashes were made from beech and hard maple (*acor saccharatum*) wood, and were sifted through a fine sieve before being weighed. The guano was the best Peruvian, costing about three cents per pound. It was crushed and sifted before using the ashes; on Plot 7, an error occuyred in their application, and for the purpose of checking the results, it was deemed advisable to repeat the experiment on Plot 10.

On Plot 5, with 300 lbs. of superphosphate of lime per acre, the plants came up first, and exhibited a healthy, dark green appearance, which they retained for some time. This result was not anticipated, though it is well known that superphosphate of lime has the effect of stimulating the germination of turnip seed and the early growth of the plants to an astonishing degree; yet, as it has no such effect on wheat, it appeared probable that it would not produce this effect on Indian corn, which, in chemical composition, is very similar to wheat. The result shows how uncertain are all speculations in regard to the manurial requirements of plants. This immediate effect of superphosphate of lime on corn was so marked, that the men (who were at the time of planting somewhat inclined to be skeptical, in regard to the value of such small doses of manure), declared that "superphosphate beats all creation for corn.' The difference in favor of superphosphate, at the time of hoeing, was very perceptible, even at some distance.

Although every precaution was taken that was deemed necessary, to prevent the manures from mixing in the hill, or from injuring the seed, yet, it was found, that those plots dressed with ashes and guano, or with ashes and sulphate of ammonia, were injured to some extent. Shortly after the corn was planted, heavy rains set in, and washed the sulphate of ammonia and guano, down into the ashes, and mutual decomposition took place with more or less loss of ammonia. In addition to this loss of ammonia, these manures came up to the surface of the ground in the form of an excrescence, so hard that the plants could with difficulty penetrate through it.—This is a fact which should be borne in mind in instituting future experiments. It would have been better undoubtedly, to have sown these manurers broadcast; and I should have done so, except for the difficulty of sowing them evenly by land on so narrow a plot, without risk of having some part of the manures blown on to the adjoining plots.

It will be seen by examining the table, that although the superphosphate of lime had a good effect during the early stages of the growth of the plants, yet the increase of ears of corn in the end, did not come up to these early indications. On Plot 5, with 300 lbs. of superphosphate of lime per acre, the yield is precisely the same as on Plot 2, with 100 lbs. of plaster (*sulphate of lime*) per acre.—Now, superphosphate of lime, is composed necessarily of soluble phosphate of lime and plaster, or sulphate of lime, formed from a combination of the sulphuric acid, employed in the manufacture of superphosphate, with the lime of the bones. In the 300 lbs. of superphosphate of lime, sown on Plot 5, there would be about 100 lbs. of plaster; and as the effect of this dressing is no greater than was obtained from the 100 lbs. of plaster, sown on Plot 2, it follows, that the good effect of the superphosphate of lime was due to the plaster it contained.

Again, on Plot 4, with 150 lbs. of sulphate of ammonia per acre, we get 90 bushels of ears of sound corn, and 16 bushels of ears of soft corn ("nubbins"), per acre; or a total increase over the plot without manure, of 38 bushels. Now, the sulphate of ammonia contains no phosphate of lime, and the fact that such a manure gives a considerable increase of crop. confirms the conclusion we have arrived at, from a comparison of the results on Plots 2 and 5: that the increase from the superphosphate of lime, is not due to the phosphate of lime which it contains, unless we are to conclude that the sulphate of ammonia rendered the phosphate of lime in the soil more readily soluble, and thus furnished an increased quantity in an available form for assimilation by the plants—a conclusion, which the results with superphosphate alone on Plot 5, and with superphosphate and sulphate of ammonia, combined on Plot 6, do not sustain.

On Plot 12, half the quantity of sulphate of ammonia, was used as on Plot 4, and the increase is a little more than half what it is where double the quantity was used. Again, on Plot 13, 200 lbs. of Peruvian guano per acre, gives nearly as great an increase of sound corn, as the 150 lbs. of sulphate of ammonia. Now, 200 lbs. of Peruvian guano, contains nearly as much ammonia as 150 lbs. sulphate of ammonia, and the increase in both cases is evidently due to the ammonia of these manures. The 200 lbs. of Peruvian guano, contained about 50 lbs. of phosphate of lime; but as the sulphate of ammonia, which contains no phosphate of lime, gives as great an increase as the guano, it follows, that the phosphate of lime in the guano, had little if any effect; a result precisely similiar to that obtained with superphosphate of lime.

We may conclude, therefore, that on this soil, which has never been manured, and which has been cultivated for many years with the *Ceralia*—or in other words, with crops which remove a large quantity of phosphate of lime from the soil—the phosphate of lime, relatively to the ammonia, is not deficient. If such was not the case, an application of soluble phosphate of lime would have given an increase of crop, which we have shown was not the case in any one of the experiments.

Plot 10, with 400 lbs. of unleached wood ashes per acre, produces the same quantity of *sound corn*, with an extra bushel of "nubbins" per acre, as Plot 1, without any manure at all; ashes, therefore, applied alone, may be said to have had no effect whatever.* On Plot 3, 400 lbs. of ashes, and 100 lbs. of plaster, give the same total number of bushels per acre, as Plot 2, with 100 lbs of plaster alone. Plot 8, with 400 lbs. ashes, and 150 lbs. of sulphate of ammonia, yields three bushels of sound corn, and five bushels of "nubbins" per acre, *less* than Plot 4, with 150 lbs. sulphate of ammonia alone. This result may be ascribed to the fact previously alluded to—the ashes dissipated some of the ammonia.

Plot 11, with 100 lbs. of plaster; 400 lbs. ashes; 300 lbs. of superphosphate of lime, and 200 lbs. Peruvian guano (which contains about as much ammonia as 150 lbs. sulphate of ammonia), produced precisely the same number of total bushels per acre, as Plot 4, with 150 lbs. sulphate of ammonia alone, and but 4 bushels more per acre, Plot 13, with 200 lbs. Peruvian guano alone. It is evident, from these results, that neither ashes nor phosphates had much effect on Indian corn, on this impoverished soil. Plot 14 received the largest dressing of ammonia (500 lbs. Peruvian guano), and produced much the largest crop; though the increase is not so great in proportion to the guano, as where similar quantities were used.

The manure which produced the most profitable result, was the 100 lbs. of plaster, on Plot 2. The 200 lbs. of Peruvian guano, on Plot 13, and which cost about $6, gave an increase of 14 bushels of shelled corn, and 6 bushels of "nubbins." This will pay at the present price of corn in Rochester, although the profit is not very great. The superphosphate of lime, although a very superior article, and estimated at cost price, in no case paid for itself. The same is true of the ashes.

But the object of the experiment was not so much to ascertain what manures will pay, but to ascertain, if possible, what constituents of manures are required, in greatest quantity, for the maximum growth of corn. All our agricultural plants are composed of precisely the same elements; the only difference being in the relative proportions in which they exist in the plants. Thus, Wheat and Turnips contain precisely the same elements, but the ash of Wheat contains five times as much phosphoric acid as the ash of Turnips, while the Turnips contain much more potash than Wheat. This fact being ascertained by chemical analysis, it was supposed that Wheat required a manure relatively richer in phosphoric acid, than was required for Turnips. This is certainly a plausible deduction; but careful and numerous experiments have incontrovertibly proved that such is not the case—in fact, that an ordinary crop of Turnips, requires more phosphoric acid, in an available condition in the soil, than an ordinary crop of Wheat. From this fact, and several others of a similar character, the conclusion is irresistible, that the chemical composition of a plant—the relative proportion in which the several elements exist in the plant—is not a certain indication of the manurial requirements of the plant; or in other words, it does not follow, that because a plant contains a relatively larger proportion of any particular element, that the soil or manure, best adapted for the growth of this plant, must contain a relatively larger proportion of this element.*

Wheat, Rye, Barley, Oats and Indian corn, all contain a relatively larger quantity of phosphate of lime; but it is not safe to conclude from this, that a soil or manure, best adapted for their maximum growth, must also contain a relatively larger quantity of phosphate of lime. We know positively from numerous experiments, that such is not the case with Wheat; and, it is therefore at least doubtful, whether such is true of Indian corn. On the other hand, we know from repeated experiments, that Wheat requires a large quantity of ammonia for its maximum growth and as Indian corn is nearly identical in composition to Wheat, it is somewhat probable that it requires food similar in composition to Wheat. This, however, is merely a deduction, it is never a safe rule in agriculture. We can obtain no positive knowledge in regard to the manurial requirements of plants, except from actual experiments. Hitherto, no experiments have been made in this country, on Indian corn, that afford any certain information on this poit. Indeed, we believe no satisfactory experiments have been made on Indian corn, in any country, that throw any definite light on this interesting and important question. A few years ago, Mr. *Lawes* made similar experiments to those given above, on his farm, at Rothamstead, England; but owing to the coolness of the English climate, the crop did not arrive at maturity. Nemerous experiments have been made in this country, with guano and superphosphate of lime; but the superphosphates used were commercial articles, containing more or less ammonia, and if they are of any benefit to those crops, to which they are applied, it is a matter of uncertainty whether the beneficial effect of the application is due to the soluble phosphate of lime, or to the ammonia. On the other hand, guano contains both ammonia and phosphate; and we are equally at a loss to determine, whether the effect is attributable to the ammonia or phosphates, or both. In order, therefore, to determine satisfactorily, which of the several ingredients of plants is required in greatest proportion, for the maximum growth of any particular crop, we must apply these ingredients separately, or in such definite compounds, as will enable us to determine to what particular element or compounds, the beneficial effects is to be ascribed. It was for this reason, that sulphate of ammonia, and a purely mineral superphosphate of lime, were used in the above experiments. No one would think of using sulphate of ammonia at its price, as an ordinary manure, for the reason, that the same quantity of ammonia can be obtained in other substances, such as barn yard manure, Peruvian guano, &c., at a much cheaper rate. But these manures contain *all* the elements of plants, and we can not know whether the effect produced by them is due to the ammonia, phosphates or any other ingredient. For the purpose of experiment, therefore, we must use a manure that furnishes ammonia without any admixture of phosphates, potash, soda, lime, magnesia, &c., even though it cost much more than we could obtain the same amount of ammonia in other manures. I make these remarks in order to correct a very common opinion, that if experiments do not *pay*, they are useless. The ultimate object, indeed, is to ascertain the most profitable method of manuring; but the *means* of obtaining this information, can not in all cases be profitable.

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*An error in our opinion. Ashes will make corn.

* From this the Editor dissent.

Similar experiments to those made on Indian corn, were made on soil of a similar character, on about an acre of Chinese sugar cane. I do not propose to give the results in detail, at this time, and allude to them merely to mention one very important fact; the superphosphate of lime had a very marked effect. This manure was applied in the hill on one plot (the twentieth of an acre), at the rate of 400 lbs. per acre, and the plants on this plot came up first, and outgrew all th others from the standard, ultimately attaine the height of about ten feet; while on th plot receiving no manure, the plants wer not five feet high. This is a result entirel different from what I should have expected It has been supposed, from the fact tha superphosphate of lime had no effect o Wheat, that it would probably have littl effect on Corn, or on the Sugar cane, or othe *ceralia*; and that as ammonia is so beneficial for Wheat, it would probably be bsneficial for Corn and Sugar cane. The abov experiments indicate that such is the case in regard to Indian corn, so far as the production of grain is concerned, though, as w have stated, it is not true in reference to th early growth of the plants. The superphosphate of lime on Indian corn stimulated th growth of the plants, in a very decided manner at first, so much so, that we were led t suppose, for some time, that it would give th largest crop; but at harvest, it was found that it produced no more Corn than plaster. These results seem to indicate, that superphosphate of lime stimulates the growth o stalks and leaves, and has little effect in increasing the production of seed. In raising Indian corn, fodder or for soiling purposes, superphospate of lime may be beneficial as well as in growing the sorghum for sugar-making purposes, or for fodder—though, perhaps, not for seed.

In addition to the experiments given above I also made the same season, on an adjoining field, another set of experiments on Indian corn, the results of which I now send you.

The land on which these experiments were made is of a somewhat firmer texture than that on which the other set of experiments was made. It is situated about a mile from the barnyard and on this account has seldom if ever been manured. It has been cultivated for many years with ordinary farm crops. It was plowed early in the spring and it was harrowed until quite mellow. The corn was planted May 30, 1857. Each experiment occupied *one tenth* of an *acre*, consisting of 4 rows 3½ feet apart, and the same distance between the hills in the rows, with one row without manure between each experimental plot.

The manure was applied in the same manner as in the first set of experiments.

The barnyard manure was well rotted, and consisted principally of cow dung with a little horse dung. Twenty two-horse wagon loads of this was applied per acre, and each load would probably weigh about one ton.—It was put in the hill and covered with soil and the seed then planted on the top.

The following table gives the results of the experiments.

Table showing the results of Experiments on Indian Corn, made near Rochester, N. Y., in the year 1857.

	Description of manures, and quantities applied per acre.	No. of bushels of ears sound corn per acre.	No. of bushels of ears of soft corn per acre.	Total No. of bushels of ears of corn per acre.	Inc. ears so'nd corn per acre ov. unma. plot.	Inc. ears soft corn per acre ov. unma. plot.	Total increase of ears of corn per acre.
1	No manure,......	75	12	8			
2	20 loads barnyard manure.	82½	10	92½	7½	......	5½
3	150 lbs. of sulphate of ammonia,..........	85	30	115	10	18	28
4	300 lbs. of superph. of lime.	88	10	98	13	......	11
5	400 lbs. of Peruvian guano...	90	30	120	15	18	33
6	400 lbs. of "Cancerine," or fish manure	85	20	105	10	8	18

As before stated, the land was of a strong- r nature than that on which the first set of xperiments was made, and it was evidently n better condition, as the plot having no manure produced 20 bushels of ears of corn per cre more than the plot without manure in he other field.

On Plot 4, 300 lbs of superphosphate of ime gives a total increase of 11 bushels of ars of corn per acre over the unmanured lot, agreeing exactly with the increase obained from the same quantity of the same nanure on Plot 5, in the first set of experiments.

Plot 3 dressed with 150 lbs. of sulphate of mmonia per acre, gives a total increase of 8 bushels of ears of corn per acre over the nmanured plot; and an increase of 22½ bushels of ears per acre over Plot 2, which received 0 loads of good, well-rotted barn yard dung er acre.

Plot 5, with 400 lbs. of Peruvian guano er acre, gives the best crop of this series, iz: an increase of 33 bushels of ears of corn er acre over the unmanured plot, and 27½ ver the plot manured with 20 loads barnard dung. The 400 lbs. of "Cancerine" —an artificial manure made in New Jersey rom fish—gives a total increase of 18 bushels of ears per acre over the unmanured plot, nd 12½ bushels more than that manured vith barnyard dung, though 5 bushels of ears f sound corn and 10 bushels of "Nubbins" er acre *less* than the same quantity of Peruian guano.

JOSEPH HARRIS.

Rochester, N. Y., Feb. 8th, 1858.

From the Working Farmer.

Experiments—Importance of.

Farmers often find fault with those who experiment. They say of a neighbor sometimes, "he is rather experimental;" but they should remember that every new truth is an experiment, to all those who have not tried it. Some one must be the first to vary from the trodden path, or we should still use a crooked stick instead of a plow. There is a class, however, who, upon hearing of any novelty in agriculture, at once try it, not on a square yard, but on their whole crop; such men are not worthy of being styled experimenters. But should a farmer, at this day, call himself practical and judicious in his calling, who, after having heard that in many sections of country corn is cultivated flat, without hilling, and that potatoes are so cultivated, still continue to hill both without trying the experiment of flat cultivation even on a single hill, can such a man be rated as judicious? Is such a man to be called a practical farmer? Is he practical, who allows Lima beans to travel around a pole fifteen feet high, when the pinching off of the vine at five and a half feet high will produce double the crop of beans, and particularly before frost? Should he not try the experiment and see how it will answer? Many permit melons, cucumbers, etc., to run over the entire area of their soil, in long, single vines, while others, by pinching off the runner-buds, after the third rough leaf has formed, get their fruit early and of double size. Why should not this experiment be tried and adopted, if found true? Goose-berries mildew all over the country, but some have saved them by cutting every branch that is within five inches of another, and by mulching the surface with salt hay, or other cheap refuse material; is this not a fair experiment to try?

It has been frequently asserted, that properly under-drained sub-soiled lands never suffer from drouth: who cannot name many farmers who lose their crops from drouth, at least once in ten years, and still have never experimented to know whether they can under-drain and sub-soil their land, for one-tenth the value of their crops, whether such sub-soiling and under draining will save them from drouth entirely? And those who doubt this fact, should they not make the experiment, or visit the farms of those who have, to know of its truth?

Thousands of acres of peach trees are grown by those who have never tried the shortening process, and can never tell whether they will bear for a series of years longer for such practice, or not. Is it not a fair experiment to try this on a single tree at least? Are there not thousands of farmers in the United States who have never tried any other fertilizing material than barn-yard manure? Should they not sattisfy themselves by the experiment, whether or not others may not be more cheaply used, and produce more profitable results?

Continually we hear it said, that those who surface plow five or six inches, have another farm under it which they have not developed. Should not such farmers experiment with the sub-soil plow to know if this be true or false? A bushel of carrots and a bushel of oats, are said to equal in effect, when fed to a horse, two bushels of oats. Now, as sixteen times the number of bushels of carrots can be raised on an acre, than can possibly be grown of oats, should not those farmers, who have never raised carrots, try the experiment, and thus ascertain if these assertions are true? Those who use hoes, and forks, etc., for cleansing row crops of weeds, have heard that the horse weeder would do the work of forty men with hoes, and that many have repudiated the use of the hoe altogether for root crops, why should they not try this experiment? It is said that one mowing machine will do the work of twenty men with scythes, and that one thrashing machine will do the work of a hundred men with flails; should not those who at present use flails, visit farms where mowing machines and thrashing machines are used, to ascertain if that experiment will not warrant them in the purchase of such tools?

Those who use barn-yards open and exposed to the winds and rains, and who permit the washings to run off to creeks and streams, have doubtless heard that with manure sheds, and properly arranged tanks retaining the drainage of the manure heap, and pumps, obtain better results than by the open barn-yard practice; should they not carefully review the operations of these experimenters, rather than satyrize that of which they have no knowledge? Experience is said to be the mother of wisdom—experiment is the father of truth.

A Few Reasons Why Land Should be Improved.

More may be cultivated with the same hands, because tilled with less labor.

Briers and shrubs disappear, grasses appear.

Cattle dammage the land and grass less, because they do not have to tramp so great a space to fill themselves.

Less land required.

Less fencing.

Less trotting after cows and horses.

Less work at the smith's shop.

Fewer whips worn out.

Stronger teams.

More manurre and less need for it.

A stimulus to action.

A pretection against winter's frost and summer's heats.

A good example to children and neighbors.

Keeps off sheriffs and buzzards.

Stops emigration.

Produces money for books, and time for reading.

Also, school houses and churches.

Produces time to travel, to lecture on economy, and preach the Gospel.

Produces sociability and hospitality.

Makes a paradise of a barren, plenty out of poverty, and a blessing out of a curse.

The barn is filled, the dairy is filled, the purse is filled, and the soul is filled with gratitude.

If the reader will reflect, he will discover that the number of good reasons why the farmer should improve his land is almost innumerable.—*From an Old Paper of* 1804.—*Southern Planter.*

A Remedy for the Hog Cholera. Coperas 1 lb., Saltpetre 1 lb., Ginger ½ lb.; pulverize the two first, then add the ginger, give to each animal a tea spoonful every day. It may be given every two or three days as a preventive. The best way to give it is in dry meal.

For the Benefit of Horses in Fly Time.—A strong decoction of walnut leaves sponged over the head, neck, hips and other parts usually attacked by the flies, will keep them way.

EDITORIAL.

RALEIGH, MARCH, 1860.

☞ Subscribers receiving the Planter with a *cross mark* opposite their address, are thereby notified that the No. thus marked closes the time for which they have paid, and unless renewed, the paper will be sent no longer. We earnestly request all who find the cross mark on this No. to promptly forward the money for the Planter another year, and if possible, send another name (or a club) along with it.

The cash in advance plan is now adopted by all the papers of the country, and we believe our subscribers will like it better than the credit system; hence, we have adopted it, and must rigidly adhere to it. No one will therefore feel agrieved when he finds his Planter discontinued, if he neglects to send on money to renew. *All* will be treated alike. We trust, however, all will like us so well, that each will send on his renewal as soon as he sees the *cross mark.*

* * *

It must be gratifying to every patriot in this wide spread confederacy of sovereign States, to witness and reflect on the progress of his country, since the declaration of independence, the glorious termination of the Revolution and the formation and adoption of the federal government. When our forefathers signed the declaration, and pledged their lives, fortunes and sacred honor in its support, (a pledge fully redeemed) the population of the then thirteen united colonies amounted to about three millions. At the termination of our revolutionary struggle it had not increased to a much larger figure. Since then, we have more than doubled our territory, numbering thirty three States, and several organized territories knocking at the door of the union for admission. Our progress has been rapid and unprecedented in the annals of nations. The production of the soil of our country within the last thirty years defies the powers of arithmetic to enumerate; the statement of its harvest, dizzies the imagination. The yield of our lands in 1855, according to the patent office report, was $1,300,000,000; more than double the value of the gold and silver of the country. The Indian corn crop alone was worth more than all the gold that ever came from California. This crop has annually augmented from that date to the present. The cotton crop rose from one million four hundred thousand in 1836–7 to three millions in 1856–7, and three and a half millions in 1858, increasing at the rate now of half a million per annum. This increase will soon be doubled. In the manufacture of Iron, we have increased our productions to more than one million of tons, which are three times as large as that of all other countries combined. The manufacturing capital of the country at the last official accounts was more than five hundred millions of dollars. The commerce of the country exhibits the same increase with all other branches of industry; and of our 40,000 miles of Rail Road, all but 1,400 are the work of the last twenty years. The value of the property of the country is more than five hundred millions of dollars. This portion of the progress, improvement and present condition of the country has never been equalled, and never will, by any other nation upon which the sun of heaven sheds his general rays of light, warmth and life. We are at peace with all the world, our alliances with no other nation entangled, and but few difficulties with them to be adjusted. At home when united, we are strong; abroad, feared and respected.

And now, the question presents itself, suggested too by the signs of the times: Shall this glorious union of ours, established by the wisdom of our Fathers and cemented by their own blood, be dissolved? Let the mind that could conceive it, be non compos, the tongue to utter it, confounded; the hand to attempt it, paralyzed; death to all who plot, long life health and prosperity to all who oppose it. All true patriots will preserve the union and cling to the pillars of the constitution, though buried in their ruins. We have alluded to the past and present condition of our country. In fifty years from this, the population of the country, should it hold together so long, will be one hundred millions of inhabitants according to the ratio of increase heretofore. This increase of population will be attended by a commensurate increase of resources, wealth and power. The anticipation of such a consummation will animate the bosom of every friend of free government, the rights of man, life, liberty and the pursuit of happiness; nerve the arm wielded in their defence and glorify the victory. Who can anticipate the future of these United States, without the emotions of joy, pride and Patriotism? None but the deluded, miserable fanatic, prefering the abolition of slavery to the perpetuation of the union. Upon what have we to rely for the common defence and general welfare of the country? A highly cultivated system of agriculture and a well organized militia, are the rocks of our salvation.—The first, the foundation of our wealth; the second, the bulwark of our liberty. What is the present condition of one and the organization and strength of the other? Our agriculture is improving, producing a surplus beyond our consumption for exportation. What of the militia? Unorganized, undisciplined, unarmed. What should be done to meet the impending crisis?—In this emergency, upon whom will rest the responsibility of putting the State in a position of defence? The legislature is not in session. Clearly then upon the Executive. Will he (Jackson like,) take the responsibility? Not as yet advised. In November next the presidential election comes off; should it result in favor of the black republican candidate, the union is no more. What time then will the State be allowed to make the necessary preparations to meet this direful calamity?—

If we are correctly informed, the militia of the State has been completely disbanded, is not enrolled, not officered. What could the officers and men do with arms without amunition? In peace is the time to prepare for war. Is there no cloud of dissolution lowering over our heads? Virginia, one of the Southern States, has been invaded, some of her best citizens murdered, their property destroyed, their dwellings conflagrated. Virginia is now placing herself in the attitude of defence.—The other Southern States, save this, are doing likewise. In the event of a dissolution, and we see nothing in the North opposing, but every thing faciliating it, what will be the predicament of the old North State?—defenceless. We are no alarmists, but we would take time by the fore lock. Prepare for the worst while we hope for the best. No Southern State should ever be without arms, without an efficient organization of her militia. The Northern States for years have been converted into regiments, brigades and divisions of volunteer corps. Why this military preparation on their part? They have been threatened with no invasion, foreign or domestic. But, in anticipation that the irrepressible conflict must ensue, they have prepared for it. Shall we in obedience to the old English principle in assault and battery cases, suffer ourselves to be forced to the wall before we commence the work of defence? Themopylæ was defended and Xerxes defeated not by unarmed militia. Our forefathers bequeathed us a rich inheritance, a free government, a union of sovereign States, bound together by the chords of the constitution, with a codcial annexed, that they should never be severed. Notwithstanding the injunction of the Father of his country, that his children should transmit this legacy unimpaired from generation to generation, a portion of the legatees have instituted proceedings to invalidate this last will and testament.—When the future historian of our country shall search for acts of patriotism and matter for biography, the contrast between sages and patriots who created, and the devils incarnate who are endeavoring to destroy the country and its government, will afford the amplest room for exhausting the strongest phrases of eulogy on the one, and condemnation on the other.

The patriots and heroes of the revolution with a few exceptions, have passed the bourne from whence no traveler returns, leaving to their posterity the enjoyment of a treasure, two specious fields as productive of glory as the battles of the revolution were to them. Far from exhausting the resources for gaining the transporting consciousness of having benefitted their country, they left for us their posterity, the creation of a great country to be defended by a powerful and brave malitia, and a fertile soil as equally meriting national admiration and gratitude with the achievements which established our independence, and placed prosperity, freedom and liberty within our reach. If our forefathers did remove the causes which oppressed the country, enfeebled our forces and impoverished our agriculture, what benefit will accrue to us, unless we reap from their valour the rewards which excited it? Had they been aware that they were fighting for a country not to be defended in future by a well organized militia, they would have discerned no reason for making themselves food for powder. People of North Carolina, liberty and the militia of a country are twin brothers, neither lives long after the other dies. The condition of one of these has already been pointed out, look well to the other. There is no apology, no excuse for neglecting the militia, the natural defence of every State. It is the best security against foreign conquest, and the only security against domestic oppression, and a combination of all the northern elements of opposition to the South. Europe was repulsed by the militia of France, and the career of France arrested by the militia of Spain. The zeal, virtue and courage of the militia of the State, are bursting the shackles of neglect, in the formation of volunteer companies in many localities; but they are without arms; without arms they cannot defend the liberty of the country or the independence of the State. At the North the weapons of death and destruction are abundant; at the South few and far between, and these out of order, of as little use to the militia as the reports of my Lord Coke or the dispensatory of Cullen would be to the lawyer or physician who practiced by deputy. J. M. J.

To our Readers.

The January number of the American Cotton Planter and Soil of the South published in Montgomery, Alabama, N. B. Cloud, M. D., Editor and Proprietor, comes to us enlarged from thirty-two to fifty-six pages of useful and valuable matter to all engaged in agriculture, horticulture, manufactures, domestic and mechanic arts; price $2 per annum. This enlargement was found necessary to inaugurate a seperate and distinct Ladies' Department, devoted to the interest and instruction of the wives and daughters of Southern planters. The Editor has also inaugurated another department, in which the science and literature of agriculture and mechanics will be discussed. We commend this journal to the whole South.—Ed.

Errata in the February No.—On page 50 right hand column, 19th line, for mastered read nurtured; in line 23, for publish read palliate.—Ed.

My Debut..

In accepting even the limited position assigned me in the N. C. Planter, I feel that some explanation is due. No one perhaps knows less of the art and mystery of the profession of Editor than I do; none more green than I am in all that pertains to the putting forth and keeping up newspapers generally. But as I am in no way connected with the machinery of the concern, but only as a volunteer, endeavoring by his humble efforts to help push forward the N. C. Planter, and through it to improve the Farming condition of the country; I accept even this position with a good deal of misgiving and diffidence. I accept the position, mainly to endeavor to supply in some degree, the lack which I think I have seen in all agricultural papers, to adapt themselves to the wants of this region of the country. Mark you, this section is peculiar to itself, unlike in soil and productions to any other point in the South. Is it therefore remarkable that suggestions referring to a country adapted to the growth of cotton, rice, &c., should not suit this country? or is it at all to be wondered at, that we do not find much in any work published in Yankeedom, suited to this country—*particularly as we do not stand in a good place to see, in these days?*

Being willing to contribute my humble mite in endeavoring to correct errors, as also to push forward the farming and planting interest of the country, I propose, as occasion permits, to contribute something in the way of suggestions, for improvement in practical and every day use. I could not if I would (and I am not sure I would if I could) issue forth learned essays upon scientific discoveries in agriculture, and all that; but rather I would press those things that more generally concern the masses of our farmers and the planting community, viz: something in reference to good plowing, draining the land, meadow making, grass pasture making, the improving of, raising, feeding, &c., of Live Stock of all kinds. And in reference to this last, I do now propose, that if I can get the ear of our people, I will have them retrace one fatal step that they have taken on that subject. On that subject I propose to say something in your next. And it, like this article, will be very likely to be prepared in too much haste; but it shall contain *facts*, which no test can disprove, or at least I think so, but if ever found t be in error, I shall not hesitate to acknowledge and correct it. Respectfully,

J. W. WOODFIN.

Asheville, N. C., Feb. 1860.

* * *

Mode of Cultivating Cotton.—Mr. Peter Cox of Cabarrus county, who took the second premium offered by the Mecklenburg Agricultural Society for the 2d largest crop on one acre, has furnished the following statement as to his mode of cultivation:

Millgrove, Cabarrus co., Feb. 4.

I raised 2,210 lbs. of Cotton in seed on one acre of Land. My mode of culture is simply as follows: Planted Petit-Gulf seed on old land the 23d of April—the land had been made rich in former years by accidental circumstances, but did not have any recent application of manure. Rolled the seed in leached ashes—plowed out the cotton stalks of a former year with a two-horse bull-tongue, then with a turn plough ridged on the old bed; used a side harrow in the first working and chopped thro' the row with a hoe; the last week in May used a side shovel with the land side to the row; the first week in June thinned to stand, leaving two stalks as near as may be every foot. Second week in June threw out the middles with a cotton sweep; next working used the side-harrow, then used the sweep again, one furrow in the middle, and closed the working with the side harrow about the middle of July. Planted the rows 3 feet 8 inches to 4 feet apart.

PETER COX.

For the N. C. Planter.

gricultural Societies and the West.

In our communication in your January umber, we intended to have given our pinion concerning the best means of organizing successfully agricultural societies n Western North Carolina, but finding our ommunication would doubtless be too long, nd perhaps weary the patience of your eaders, we reserved another article on the ubject, for a subsequent issue—intending o have it ready for the February number, ut we could not find the time to prepare he article until this late day. In the eantime, we hope the readers of the *Planter* on this side of the mountain have hought the matter over, and have no oubt come to the same conclusion in regard to perpetuating societies, that has orced itself upon us.

In the former issue we noticed the unortunate position in which our people are laced, in regard to market facilities, and onsequently our inability to organize soieties for the encouragement of a friendly trife for the championship in those arts, hich render the life of a farmer so happy nd agreeable. We mentioned also that ut two societies under the present "Act f Assembly," have ever been organized est of the "Ridge," and that these have roved almost a hopeless failure. It may e said, that they were not conducted on e proper principles, or that the matter as not taken hold of with that spirit and ergy necessary to the success of such an dertaking. To this we reply, that we now the men who have been engaged in l the efforts that have been made, and ou could have chosen none better qualified perform an arduous task, or surmount a fficulty in this or any other object in hich you could engage them.

As we remarked in the January issue, ose eight counties (Cherokee, Macon, ackson, Haywood, Henderson, Buncombe, adison, and Yancey) west of the mounin, are entitled, after having complied ith the requirements of the statute, to the m of fifty dollars each, (from the Public reasury,) for the benefit of the society in ch county. But none of them (except uncombe and Henderson) have ever atmpted the privilege of claiming the genous offer, simply because the citizens ere aware that it was almost impossible to raise the necessary amount annually in *one* county, to secure the State's subscription.

Now, what we wish to propose is this, that these eight counties organize into one society, called the "Western N. C. Agricultural Society." That they petition the next meeting of the Legislature, to allow them (after fulfilling the requirements of the statute) to draw the whole amount ($50) which each would separately be entitled to, and form a common fund among them all. This would give the neat little sum for the eight counties of four hundred dollars. And this with what the society would raise to comply with the statute, would make eight hundred dollars. This amount properly distributed would furnish a nice list of premiums. Let these premiums be paid off in something worth laboring for, silver sets, cups, plates, &c., or whatever else the committee may, in their judgment deem adequate to the amount of toil and taste expended in preparing articles for exhibition. The farmer will be well repaid for his trouble, time and expense, as well as the consciousness of having produced something worthy of imitation by his neighbors.

Ah! but says one, how are you going to procure the $400 necessary to secure the State's donation? If you can't collect $50 each from the counties as the matter *now* stands, how are you going to accomplish it under the plan proposed? To this we answer, that we doubt not but a larger sum than four hundred dollars would *then* be subscribed in the eight counties. As the matter *now* stands, at the best the winner of a premium will only get one or two dollars, and of this sum it requires at least one dollar to constitute him a member of the society, and if he gets a premium he is after all loser, for his premium will only about amount to his subscription for membership, (the funds of a small society will scarcely ever admit of more,) and he has had the *fun* of driving his stock, or hauling his produce to exhibition at his own expense; whereas under the plan suggested above, if he gets a premium it will *amply* repay him for all trouble and expenditure, besides becoming known a little *farther from home* as a "*good farmer.*"

There are other ways under the above proposition of raising the desired amount ($400.) Suppose the society constitute what we will call a "Life Membership," that is, any person on paying a certain amount, (say $20) shall become a member for life; this makes such members interested in the perpetuation of the society.—They will have something *invested*, and they will labor, electioneer and beg more every year to secure the necessary amount for the advancement of the interests of the society. Now, I know of at least twenty-five gentlemen in those eight counties who would each become a life member. This at $20 each gives the sum of five hundred dollars to begin with.—Another manner for raising the funds to form the general stock of the society is the admittance fee to the exhibition.—There would always be at least one thousand persons at the annual Fair, and say you charge an admission of 25 cts. each, this gives $250 more. The only plausible objection that *can* be urged to the above plan is, that the farmer, if he gets no premium will have *farther* to go and a more *expensive* trip for *nothing*. Now, we propose to remedy this inconvenience in the following manner: every summer season there are a great many visitors to this mountain region, in search of health and pleasure; suppose that it is understood that a great many articles will be offered for sale on the days of exhibition, why, the consequence is, that we will soon create a market at home for all our surplus stock and produce, that otherwise we would be compelled to drive or wagon a long distance before reaching a market. Purchasers from adjoining counties and States would attend the exhibitions for the purpose of securing the best the country affords.—Farmers would thereby be relieved of the necessity of seeking a purchaser away from home, for besides securing a premium, his market would only be two day's drive from home, and the time spent profitably to himself, and a general holiday to the "little ones." But one will say there will soon arise a jealousy among the counties, as to which would be the seat, and enjoy the fruits of the exhibition. This need not be so. We would suggest that the society purchase suitable grounds somewhere, have them properly enclosed, and improved with the right kind of cheap buildings. This will make it feel like *home* to *all* the members, no difference in what county it may be situated; every man will feel like it is his property, an will labor to take care of it. But if it i preferable otherwise, let the annual Fai be held alternately in each county inter ested, guarding only against being too fa from an *accessible* market.

Now, my plan of organization would b as follows: Let the memorial to the Legislature be prepared and circulated amon the people, and let the subject be agitate by appropriate addresses among them *b the right kind of men* during the Sprin Term of the Superior Court, subscription being requested, and the people aroused t the importance of the subject. Let us us the Tuesday of Court week for this purpose, stop an eternal gabble about politic and visionary projects and talk about ou *real home* interests. Organize by electing President, Secretary and Treasurer, have Vice President in each county, and organiz in every county a Farmer's Club Society, auxiliary to the great mother organization and the Vice President of each county b the Chairman of the Farmer's Club, thereby superintending the interests of both a the same time. Let the best articles o exhibition at the Farmer's Club, (whic exhibition should come off a short tim before the annual Fair of the Society) be listed in competition for premiums at the Fair of the mother Society. The secretaries of the Society and the different Club should be in constant correspondence, sc that preparation may be made for the reception of *any* article the Clubs may send, &c., &c. But some may object because the territory comprised in the eight counties may be too large and put the farmers to a great inconvenience in taking their articles to exhibition, inasmuch as we do not enjoy rail road facilities. Well, this a matter for which we have at present no remedy, but if it is an insurmountable objection, why let us have two societies, divide the territory into four counties, each on the system suggested above, and move along on a more economical plan, give valuable premiums, and to such only as deserve them. Now these are our sentiments and we would like to hear an expression of opinion from the friends interested in this matter. Let us hear from the press in that section on the subject.

We notice that friend Atkin of the "News" has done us the honor of republishing (without knowing the author) in

is paper our article in your January num-
er, and judging from some editorials that
ave hitherto appeared in his columns on
ie subject, we suppose he would favor an
rganization of the kind proposed. If so,
e and all others would do the community
i incalculable benefit by bringing the
atter prominently before the people, and
rging it on to success. Let us hear also
om the "Observer" at Franklin, and
her papers published in that region. By
ie way, we notice that our friends in Ma-
on county are endeavoring to organize a
ociety in the "good old way;" we tell
iem it won't do, we have been an officer
one of the Societies, and know from
ractical experience how hardly such things
icceed in our *wooden* country. We would
glad to hear from your Associate Editor
this matter; we know his opinion is val-
ible among the citizens of the West on
ie subject of agriculture, and we would
gratified to have him endorse (or if he
ease, father,) our proposition above, as
will doubtless give it much more force
ith our practical farmers.

And now, Mr. Editor, with a hearty
ongratulation to you for the success of
ur Planter, permit me to return sincere
ianks for the use of its columns upon a
ibject which can only be possibly interest-
g to a small area of the population it is
esigned ultimately to benefit.

REFORM.

The Tobacco Market.

The prospects for high prices for this great
aple of the State is at this time not very
ittering to the hopes and expectations of
ie planter. The statistics for the last ten
ears show an increase in the supply over
ie demand, the legitimate result of which
ust be a depreciation in prices. This con-
tion of the market must continue until the
emand must exceed the supply. This may
anticipated at no distant period, for wher-
er the prices drop down from the high fig-
es which have been realized for several
ears previous to last season, there will be a
rresponding deficit in the supply. The to-
cco crop differs in this respect from our
her crops. The low price of the cereals in-
eases the consumption, and however great
ay be the excess in the supply, the corres-
onding decrease in prices induces a more
vish consumption, which tends to the rapid
duction of this excess, and consequently,
ithout a succession of heavy crops, must
ing about an equilibrium in the demand and the supply, which enables the farmer, as a general thing, to realize good prices for the cereal crops. Such is not true in the consumption of tobacco, so far as it is used for chewing or smoking purposes. The price has no effect upon the consumption; the same quantity will be used, whether it costs fifty cents or a dollar a pound, consequently, when the supply is in excess of the demand, the only relief from a continued depressed market, is to cut short the supply by reducing the crop. This will be the inevitable consequence of the present low prices, with the certainty of a further depression, from an over-supply of stocks upon the markets. The following statistics will show the condition of the market for the last ten years:

STOCK ON THE MARKET, JAN. 1.

1850,	hhds.	6,064
1851,	hhds.	6,374
1852,	hhds.	5,096
1853,	hhds.	9,640
1854,	hhds.	7,555
1855,	hhds.	3,588
1856,	hhds.	2,575
1857,	hhds.	5,747
1858,	hhds.	4,654
1859,	hhds.	9,461
1860,	hhds.	8,644

We find from the above table that the stock on hand the first of last year was greatly in excess of any previous year, except 1853, when the stock on hand exceeded last by 179 hogsheads, the stock on hand the 1st of the present year being several hundred hogsheads less than last year, but still showing a large surplus upon the market. It must also be remembered that the above table gives only the surplus upon the New York market; the other great tobacco markets of the country show a corresponding over-supply, as follows:

STOCK IN WAREHOUSES.

		1859
New York,	hhds.	9,401
New Orleans,	hhds.	20,588
Baltimere,	hhds.	8,500
Virginia,	hhds.	8,890
Philadelphia,	hhds.	560
Total,	hhds.	40,179
		1860
New York,	hhds.	7,644
New Orleans,	hhds.	19,547
Baltimere,	hhds.	15,500
Virginia,	hhds.	200
Philadelphia,	hhds.	742
Total,	hhds.	44,633

The exhibit of the stock of the manufactured article on the market Dec. 31st, is still more unfavorable for the planter, and also the manufacturer—1858, pkgs. 32.408; 1859, pkgs. 55,202—being an excess over last yea of 22,704 pkgs. When it is remembered that we commence the year with a supply upon the New York market of 55,202 pkgs., with a corresponding proportion upon other marts, and a large crop now ready to be thrown upon the market, it would be madness to encourage the hope that even present prices will be maintained.

Make Home Happy.

Let us suggest, then, some things which may tend to promote the happiness of home.

1. Each in the home circle must have a benevolent spirit, or have a disposition to make the rest happy. If one be heedless of the wishes of the others, but tenacious of his own gratification, he acts on a selfish principle, which can sunder all human ties. A benevolent spirit will lead to frequent self-denial for others good, and it is the corner-stone on which the happiness of home must rest.

2. Avoid the positive causes which tend to mar the peace of home. Everything which will be likely to displease, if unnecessary, should be avoided. The happiness of a day be destroyed by a single word or action, and its repetition may keep a family in constant turmoil. Small things may embitter life.—He who would knowingly give unnecessary pain is wanting in human feelings.

3. Each must have a forbearing spirit.

No one that knows himself imagines that he is perfect, even, as a social being. He needs the forbearance of others, and he must be willing to extend it to them. To ask perfection in others, when one has only imperfections to give in return, is not a fair exchange. There will often be differences of opinion, but there need be no alienation of feeling. Let the judgment lean to the side of charity, and what charity cannot cover, let forbearance excuse.

4. Be ready to ask forgiveness.

Many are too little disposed to do this. But nothing can so stamp one's character with the seal of true greatness, as a free, open, penitent acknowledgment of a wrong, whenever it has been done. And whenever such spirits are together, harmony cannot be broken, though the house be small.

5. Cultivate an open, communicative spirit.

An open expression of thought and feeling leads to a wider comparison of views, to more intelligent judgments, and to a knowledge of one another, which removes distrust, and forms the only true basis of mutual confidence and sympathy. Minds cannot flow into one another unless they know each other—unless they are open and communicative. Most subjects may be familiarly conversed upon. At least, a spirit of reserve should be avoided. If characteristic of a family in their relations to each other, it stops the spontaneous out-flowing of feeling and thought; it deadens sympathy, chills affection, and thus breaks the sweetest charm of home.

6. Another requisite is the faithful performance of relative duties.

Every social relation involves corresponding social duties. Husband and wife, parent and child, brother and sister, owe to each other respectively the duties of these relations. It is a fundamental law, in all the relationships of society, that they involve reciprocal duties which balance one another. And if a person sustain a relation and neglect its duties, he violates the very principle of harmony in the social system. He disowns his own nature. He is worse than an infidel.

7. Cultivate a relish for useful knowledge.

Some of the family, at least, have leisure. Let them so use it as to increase the common stock of knowledge. If a family dwell only on the routine of daily affairs, or on events of mere local importance, their minds will want vigor and scope. The hour of leisure will drag heavily. Life will pass in a dull monotony. Home will be wanting in attractiveness. But enlarge and elevate the thoughts of the home circle, and it will give vigor to the intellect and freshness to the feelings; it will waken the spirit of enquiry, prompt to diligent reading and study, and pour into the daily conversation vivacity, variety, and elevated sentiment. Let young minds grow up surrounded by a spirit of intelligence which reads, which investigates; not mere news of the day, but that which is of substantial importance—the very kernel of truth. It is dangerous to the happiness of a family, if its leading members sink into mental sluggishness. Many a young minds has sought low and vicious excitement abroad, for want of proper mental employment at home.

8. Cherish the social affections.

Nothing can supply the want of these.—They give to domestic life its bloom and fragrance. Under their influence every burden is light, every employment cheerful, every care sweet. Without them all mutual service is a kind of task-work, and life itself cold and cheerless. A sense of duty, however strong, is not sufficient. A determination to do just what one is obliged to do in the thousand little cares of domestic life, overtasks the conscience, and leaves little room for the play of the affections. These are not altogether spontaneous. They may be cherished—directly, by little attentions and kindnesses which feed them; indirectly, by avoiding whatever drinks up their life—seeking pleasure abroad, apart from the family—self-indulgence; too absorbing pursuit of wealth or honor—any thing which does not give room for the growth and play of the social affections.—*Montreal Witness.*

A Great Secret in Agriculture.

Plow deep, manure heavily and cultivate well.

When an implement is no longer wanted for the season, put it away in good order.

Never undertake a larger crop than you can well manage.

Land half cultivated grows poorer and poorer; land well cultivated, richer and richer.

Rise early and work late.

Never postpone till to-morrow what can be done to-day. "Now" is the watchword, and should be remembered by all who work to obtain the first numbers of the Planter for 1860.

Pay strict attention to a rotation of crops, or you will soon exhaust your land.

Solomon was the wisest and Sampson the strongest man, but neither could make good crops on poor land half tended.

If you would regenerate your soil, you must first know how to do it, you must be better informed.

A New Fertilizer.

We are in receipt of a letter from Messrs. Mycoeth and Perkins, Jersey City, N. J., calling our attention to a Chemical Guano, prepared by them, which they say possesses all the properties of the Peruvian Guano, but can be furnished at considerably less cost. It is represented by them to be "specially adapted for particular crops and soils"—what particular crop and soils is meant thereby, we do not know. In order to introduce it to the Agriculturists of North Carolina, they make the following proposition:

> "We will give a sample to any Committee appointed by any Agricultural Society, for experiment along-side of Peruvian Guano, or any other Fertilizer—equal quantities upon equal space of land—and can be applied upon such soils supposed to have run out or deteriorated—and will be prepared for any crop desired. Results when ascertained to be made public through the North Carolina Planter, at our expense. We also invite the test by Scientific Agriculturists. All communications to be addressed to Mycoeth & Perkins, Jersey City, N. J. at as early a date as possible, to prevent disappointment in time of planting. Pamphlets can also be obtained."

We publish the above for the information of our readers. The article referred to can be tested free of expense, and its merits thereby be satisfactorily judged of.

KITTRELL'S, Jan. 25th, 1860.

DEAR PLANTER:—By your earnest solicitation, I am constrained as one of the *plain* Farmers to write you a few lines; but hardly know now what it shall be. But I suppose, however, it matters but little what, as I confide in your promise to put the thing in "ship shape."

I am a young navigator on the sea of Agriculture, but have even now determined to pursue a medium course, endeavoring to avoid the Scylla of old notions on the one hand, and the Charybdis of too literal "book farming" on the other. I will take Old Notioner and Scientific both as pilots, reserving for myself a seat between them and an occasional pull at the wheel; for if in any system, certainly in farming, "circumstances alter cases." No man can mark out a course which can be profitably pursued under any and all circumstances.

I have, for some time, been thinking of *moving*. During long drouths, when the crops look sickly, the fever (Southern) generally seizes me, (I admit the frequency of drought farther south) and it is with difficulty that the Planter, with its wholesome advice, can dispel it.

Now you, "reared" back in your easy chair, with your slippers on, with your Agricultural Chemistry in your hand, which tells exactly what will make "truck grow," (excuse familiarity) would no doubt prove clearly, to us brogan-shod, hard-fisted fellows, by argument and fact, the very absurdity of the idea; and would make a man believe that as much can be made here as in Texas or any where else this side of Egypt; but when he tries it, unless his faith is very strong, it will be considerably shaken by the first two or three year's experience. I have no doubt but that large amounts *can* be made from small fields, "a la mode" scientific; but so far as my limited observation goes, every man who farms on this high-church system, (if I may be allowed the term,) although to casual observers he has every thing going on as it should, yet he soon fails or finds that he only pays expenses. Of course you will say there is a screw loose—something wrong—which I admit must be the case. The only solution I can give is, that "a little knowledge is a dangerous thing." While on the other hand, those who seem to have nothing right, make more money.

Now, as I said in the beginning, I am a young navigator, though they (as it don't cost them any thing) say that I will make a first rate Farmer, and would like, to avoid these breakers, to know, if it is a reasonable demand, some of the prominent faults of those who depart from the old beaten track. I don't want to move, if I can help it. It is a very hard thing for a man to move a thousand miles from his place of nativity; a very hard trial. To break off many of his dearest social ties; to leave a healthy locality, peaceable and social neighborhood, to risk his own and the health of his family, and settle down, a stranger among strangers, in a strange land. We should be prompted by our very pride to remain. "What man has done, man can do." It looks like cowardice to give up a thing because it is difficult. Success here, demonstrates the power of mind over matter. The merest ignoramus can succeed where only brute force is required. We should not leave until every resource is exhausted. And even when we *think* that every resourse *is* exhausted, peradventure if we search diligently, we may find ourselves vastly mistaken.

There are so many places on every farm from which material for manure can be collected. The Stables, the farm-pen, the hog-pen, the poultry house, the smoke house, the tobacco barns, and ditch banks, the straw stacks, back of the kitchen, under the cabins, in the fire places: and then there is woods mould, muck, leaves, &c. When all these resources are exhausted, and we by study and search can find nothing else, and when we find that the purchase of special manures, guano, &c., don't pay, and withall don't make a *good* living, why then, and not til then—Southward ho!

We Farmers in this old neighborhood are about to get in luck, as Kittrell's Spring has been purchased by the Messrs Blacknall, and they are putting up some fine buildings to accommodate those who will partake of our extra shoats, lambs, fowls, vegetables, &c., along with the water.

Yours, &c. O.

Sheep and the Mountains of N. C.

Mr. Editor:—I have been informed there are thousands of acres of land in your State that is a dead capital to its owners; now if some of your enterprising Citizens would place a flock of Merino Sheep on a tract of it, how soon would he enrich himself, and also prove a blessing to his country. I have often thought that if your legislature would give to some man, who understood his business, some three thousand acres of your mountain lands (now worth but a nominal price per acre) with the understanding that he would place a flock of Merino Sheep there and test the ability of your climate and soil, that he would unfold to you resources that are now worthless to your State. This small donation of your legislature would in 5 years, place your State in the front rank of wool-growing States. In corresponding with intelligent men who are now living in your State, I have been astonished to find so much idle land that would make the finest of Sheep Walks. Lands that I now learn are worth from 40 cts. to $3 per acre, would soon become valuable, as sheep tramping over and grazing its now scanty grasses would soon give to the surface a smoother aspect and also enrich the soil.

J. S. GOE.

Near Brownsville, Pa., Jan., 1860.

☞ John P. McLean, Esq., Secretary of the Cumberland County Agricultural Society, has sent us about 30 subscribers this year. If all others would do as well for the N. C. Planter, we would soon have our coveted three thousand. Thanks, friend Mc.

Horticulture.

S. W. WESTBROOK, EDITOR.

Pruning Apple Trees.

In pruning apple trees, we must recollect that the fruit grows upon short spurs or buds found along the sides and the ends of the branches; and that if we injure, or break, or cut away these, we destroy our own expectations of a crop. Some branches should be trained along horizontally to the wall or espalier while ever there is room to extend it. If, however, the tree is a standard, which we desire to keep within a certain size, we must cut these fruit branches close to eye or a young shoot; this obstructs the sap in its direct flow, and causes two lateral branches to shoot forth.

When requisite to make room for a branch that is evidently well adapted for bearing, we should cut out the most irregular limbs or those which are decaying, or too old to bear much longer. Always cut close to a stem, or to the lateral branch which you desire to leave

When a tree exhausts itself in wood and no longer produces much fruit, cut it down to within two feet of the ground, and convert its stem into a stock for grafting on. By this method you will have a fine young tree which in three years will bear as much fruit as a newly-planted one would in eight. A second method of managing barren old trees is to cut out a dozen branches and graft in their places fine young healthy limbs; the following season do the same, and continue the system until the whole tree formed of fresh wood. A third method is to remove the earth from the roots in early spring, and cut off clean with a sharp knife, two or three of the strongest. This operation renders the sap less redundant, and it settles in those parts through which it flowed before, gently nourishing those buds of fruit which the rapidity of its former course or the grossnes of its qualities had caused it to abandon.

* * *

Pear Culture.

We take very great pleasure in presenting our readers the following article on Pear Culture, from the pen of a Fruit Grower of Richmond county—a gentleman as well qualified to write on the subject of Fruit Culture in the South, as perhaps any man in it. He has made it a subject of study, investigation and practical experiment for several years, and can therefore "speak of that which he *does* know, and testify to that which he *has seen*." Our readers will be sure to gain much information from his contributions—information too upon which they may rely with confidence. It will be seen that he promises to favor the N. C. Planter with a series of articles on the cultivation of various kinds of Fruit. We sincerely thank him for his kind aid in enhancing the value of our State Agricultural Periodical, and congratulate our readers upon their good fortune in being thus able to derive instruction from one so well qualified to impart it.—Ed

For the N. C. Planter.

Comparatively few persons among my acquaintances in this State, know that there is such a thing as a delicious Pear; and fewer still, that the trees will yield their fruit before all human patience and a good deal of human life have passed away. My object, with your permission, is to dissipate this misty idea, and to give my fellow-citizens some facts in regard to this fruit, derived from experience and reading; and if I shall be able thus to induce them to plant a few trees, I feel sure they will thank me for my efforts, so soon as they get the first taste of the fruit—which will surely come.

Before going into this, however, let me make a remark or two in regard to the history of the Pear and its cultivation in this Country. The pear is not a native of the United States, and having been but little cultivated, there are but few seedlings of American origin, which are regarded as of great value, and what few there are, are almost exclusively of Northern product. It is the chief fruit (of its class) in Europe, and is there cultivated to a very large extent. In consequence of this, whilst American Nurserymen sell apple and peach trees for less than half the sum they demand for pear trees, in Europe the price is the same. This is owing to the demand, the adaptation of climate, and (above all) to the fact that the seedlings can be so much more easily raised than with us. If I were to assert that four-fifths of all the Standard Pear trees (Pear grafted on Pear—whilst those budded or grafted on quince, are called Dwarf) sold in the United States, are upon stocks *raised in Europe*, I should not make an extravagant statement. The fact is well known to our Nurserymen, and to many others who have directed their attention to it, that Pear seedlings and rooted Angers quinces are *imported* annually into this country from Europe by the hundred thousand, and that it is by no means uncommon for the trees, *budded and ready for sale*, to be brought on likewise, "in quantities to suit the demand." I have trees on my grounds now, which I feel sure were grown at Angers, in France, imported by the Northern Nurseryman, grown in his Nursery one year, and then sold to me at a profit. This is about the history of Pear Culture in the United States. It is true that there are very many trees budded and grown in our own Country—but the *stocks* are chiefly raised in Europe, a good deal of the growing is done there also; and until recently, nearly all the rest was done at the North. It has been found difficult to grow seedlings in the United States, and they have been imported by Northern Nurserymen, who have demanded heavy profits on the invoices. Southern Nurserymen have been, therefore, obliged to purchase from Northern ones, or do without the article entirely—unless they choose to graft upon suckers, a practice which no respectable man should resort to. I am sorry that such is the fact; but it is the fact, and cannot be successfully denied.

A better day for Southern Pomology is, I hope fast approaching. Nurseries are becoming more abundant, and are preparing themselves for supplying all demands, with articles grown in the South. It can be done *now*, with all fruits except the *pear*, and for this we shall be obliged for a year or so to depend upon Europe and the North. If we can succeed in raising our own seedlings, it will help us a great deal. If not, we should endeavor to *import them ourselves*, and thus save the profit which others derive. It will add that much to our commercial independence. If we could raise the seedlings, it would do it still more, though even then we should have to import the *seed*—the same not being readily obtainable here.

I have given the facts above for two reasons:—first, because "honesty is th best policy," and horticulturists should b dealt with fairly and candidly;—and secondly, to explain the reason why Pear tree sell at so much greater price than Apples and Peaches. Having said thus much, and expressed the hope and belief that after few years we shall be able to get an abundant supply of Pear trees from our ow Nurserymen, of their own raising, and a a price not exceeding 25 cts. for those o two years growth, I proceed to invoke th indulgence of my readers, whilst I write o a more pleasing branch of the subject. A I do not propose to write a *treatise*, I shal be pardoned, I know, if I put down m thoughts, as they rise, with a running pen

Reader, did you ever taste a Pear, which in the language of Downing, in regard t the Belle Lucrative, was "exceedingl juicy, melting, sugary, rich and delicious?" Have you got any of this kind planted i your garden, or on your farm? Why not But, my dear sir, you are in a very grea error about that—many of the trees produce fruit in three years from the tim they are planted. I can see from th window where I am now writing, a tree planted last season at two years of age which is now full of fruit-buds, and wil bear this very year, if the frost does no prevent. No, Sir, it is not a dwarf—bu a standard—a White Doyenne, one of th most delicious varieties known, but a variety which ought not to be planted ver near the sea coast. All kinds do not begi to yield fruit so soon, and it requires fo some of them a period of from seven t ten years—but there are a number whic will come into bearing at from three t five years of age, and produce a fruit whos quality is good enough for anybody outside of Paradise. If you do not believe it, try it; and if after having given good cultivation and tasted a well-grown and well-ripened specimen, you do not concur with me write me down a—romancer, and I wil acknowledge the justice of the charge.

But you desire to know what varieties will bear fruit of good quality, at so early an age as I have indicated. I must tel you *some* of them—and for the truth of the statement, rely on my own experience, and that of intelligent cultivators in all sections of the country. I speak of early bearers when grafted on pear stocks and *properly* *ltivated :* Bartlett, Belle Lucrative, eurre Clairgeau, Lawrence, Stevens' enessee, Beurre Superfine, Doyenne oussock, White Doyenne, Gray Doyenne, ostiezer, Doyenne d'Ete, Dearborn's Seed- ng, Flemish Beauty, Bloodgood, Winter ellis. The following are excellent varie- es grown on the quince stock, or dwarf: eurre d'Anjou, Beurre Superfine, Beurre iel, Beurre Easter, Ubaniste, Louise onne de Jersey, Duchesse of Angouleme, oyenne d'Alencon, Doyenne White, Doy- ne Gray, Noveau Poiteau, Beurre St. icholas, Vicar of Winkfield, Belle Lucra- ve, Doyenne Sieulle. Besides the kinds amed above, there are many others of sur- assing beauty and excellence, well worthy extended cultivation. Among them ight be named Seckel, (of the very high- t flavor,) Beurre Bosc, Morgan, Beurre Anjou, Buffum, Sheldon, Ott, Paradise Autumn, St. Michel Archange, Berga- ot d'Espereu, Glout Morceau, Ananas Ete, &c. The list need not be extended, ough I could easily do so, if necessary. ut I have named varieties enough. These, ell planted and cultivated, will give a suc- ssion of choice fruit from the 20th June mid-winter.

What is good planting and good cultiva- on, for both the standard and dwarf tree, shall reserve for another number; and fter having tried the patience of my rea- ers on Pears, I shall, if I don't become wo lazy, have something to say upon eaches, Apples, Grapes, Cherries—nearly very thing known to the science of—Car- ology—*with which I am acquainted.*

SUNNYSIDE.

rape Growing and Wine Making in California.

[CONTINUED FROM OUR LAST.]

CULTIVATING.

The vines having been planted either as ttings or as rooted vines, in the month of anuary, the ground being recently plowed, ot many weeds will be visible before the onth of March; but this month it will be me to commence either on account of weeds, that the ground has already hardened ound the vines and requires airing and lverizing so that the atmosphere may pen- rate freely to the roots; for this purpose e well known shovel plow is the best and most simple instrument, used commonly in the Western States to cultivate the Indian corn. This requires one horse and a man—said plow can go within an inch of the vines, and consequently, destroy all weeds. First, the plowman plows one way, and then when done with the field thus, he plows crossways, by which operation any weeds escaping the first plow, will be successfully destroyed without using a hand hoe. In this way, one man with two horses (one horse in the forenoon and the other in the afternoon) can comfortably plow three acres a day, as an average, in 26 working days in a month.

All plantations of vines one or more years old, ought to be plowed twice a month, as above described, to keep weeds down, and stir up and pulverize the ground, by which you will charge it with nitrogen. This exposure of alternate stratas of earth to the action of the sun, air and rain, fertilizes the soil incredibly, besides the weeds plowed under ground by their rotting enrich the earth and impregnate the same with ammonia and humus; then a mellow ground is much more adapted to attract moisture from the atmosphere than a hard baked one.

PRUNING, FIRST YEAR.

When the last plowing with the end of July is done, nothing more in the way of cultivation is necessary until the end of December or beginning of January (the time for pruning). Your vines, if planted as cuttings, will have but a small shoot; but if rooted vines, these shoots will be strong, and several of them; in either case you cut the vine back to two eyes, always careful that all ground shoots shall be clean cut away from the main stem; your pruning knife must be sharp, so as to make a sound and round cut, to heal easier than long cuts that injure the vine; and it looks bad, besides, to see dry sticks of an inch and over sticking out.—When the vine sprouts, which is about the month of March, and sooner in this country, the planter must inspect, carefully, his new vines, and break all sprouts out from the vine except the two coming from the two eyes left for that purpose. This done, the planter must again put his shovel plow to work, and cultivate the soil precisely in the same way as he did last year, described above.

PRUNING, SECOND YEAR.

Again, with the end of December the pruning begins, there having been two vines raised on each stem; the one the most feeble or crushed is cut off with the pruning knife, the other is left to the length the planter wishes to raise his vine stem. If it is a small vineyard, I would advise to raise the vine to four feet above the ground, and stake it, but with a large vineyard this would be too expensive in this country, and then you cut your vines to two feet and a half above ground. If sticks are to be used they are driven in the ground after the vines are pruned; if not, then these stems, cut to the height of two and a half feet, should remain as they are for the present. When the sprouts begin to show themselves the vines must be thoroughly cleaned from them, and every bud rubbed off on the vine except the three top buds, which are left to make the bead of the stem, but besides these nothing must be tolerated to grow on your stem. The shovel plow is now put to work again as in previous years; this time the planter will have a small crop, several pounds of grapes to the vine, but must mind if the vine is bearing too much; break this surplus out in the beginning, as it would enfeeble your yet tender vines, and be injurious to them for coming years.

PRUNING, THIRD YEAR.

The grapes having been gathered, the pruning will begin again, and in December or the beginning of January this time there are three vines on the main stem; two of these vines must be cut to two buds each for making wood (for so called water branches or vines) to become the next year the bearing vines, and the third one of these vines cut to four buds, which will be quite sufficient to bear grapes, but if the main stem is quite thrifty you may leave five buds; such a vine will average in this country, generally, from ten to fifteen pounds, and often as high as thirty pounds of grapes. After said pruning, the cultivation goes on as in the preceding year.

PRUNING, FOURTH AND SUBSEQUENT YEARS.

Many and various are the opinions on pruning bearing vines. Some assert that the only way, is to cut the vine back to from six to ten spurs, and on each spur to leave two or three buds is the best; but on mature reflection, considering that the stem so cut has to make all the wood, besides to produce and ripen the grapes, it is not reasonable to believe this mode to be correct, and in fact experiments in different countries and climates have proved this doctrine false. It is a well established fact, that the best mode of pruning is to cut the stem to three spurs each, with two buds, and leave three vines each two or three feet long, according to the strength of your stem, the three spurs will grow this year wood for the next year's bearing, and the three long vines will grow the grapes. Next season the old three vines which have borne grapes this year, are cut off to spurs with two buds each, and the three long vines originating from the last year's spurs are left to bear grapes this year, and so on alternately from year to year. This mode of pruning will insure a lar crop every year, and will not exhaust t vine.

SUMMER PRUNING.

The native Californians never used to pru vines in the summer, but let them grow a length they pleased. This is erroneou every person on reflection at once can that the sap required to grow and produ vines ten, and often twenty feet long, may better used if it is forced into the grape undoubtedly the berries and bunches will larger if moderately trimmed, besides, t trimming is a great advantage when the g pes are gathered, as the picking is so mu easier than in an untrimmed vineyard whe everything is tangled up. The best mode to cut the tops of the vines to the height five or six feet from the ground, in t middle of August. This operation is do easily, and pretty quick, one man, with sickle, tops off about 2,500 a day. Besid the above named advantages there is o more, viz:—Where the top is cut off ever where small vines will spring out and forn dense leaf on the ends of said vines, keepi the grapes growing underneath in a mod ate shade, and making them thus more te der, juicy and sweet. It is, therefore, a gre mistake, practiced often by new comers fr modern Europe, that they will break out t so-called suckers, that is little branches sta ing out behind the leaf and growing feel up to the length of a few inches. These the Northern parts of Europe are broken u but not in Italy, Greece, Smyrna, etc. No California, having a warmer climate, t vines need more protection against the s than elsewhere, and experience shows, th where some bunches of grapes are expos without the shelter of their leaves to the ra of the sun, the berries remain small, gree hard and sour.

AGE OF THE VINE.

This depends on its treatment by prunin distance of the vines from each other and t climate. In France a vineyard planted t and a half to three feet apart and two feet the rows, and, of course, trimmed spur-fas ion, will be very feeble when twenty yea old, and as to its yield, almost worthless. planted a larger distance apart and prun in the alternative mode, that in short spu for wood and longer vines for bearing, it w be at thirty or more years pretty good yet.

In the upper part of Hungary, closely plan ed and badly trimmed vines last from fiftee to twenty years, only; in the southern par of Hungary from twenty-five to thirty year n Italy, Greece, Smyrna, etc., where t

se planting is not in custom, the vines
ch an age from one hundred to two hun-
d and three hundred years, and will bear
ry year a crop from 1,000 to 2,000, even
to 4,000 bunches, of the lagest size.

alifornia seems to possess even more pow-
of keeping the grape vine during a long
riod of years in vigor, notwithstanding said
dicious trimming. There are Vineyards
southern California where vines are eighty
rs old, and with good care, will last tre-
and quadruple that length of time. I be-
e that a vineyard planted eight feet square
he stem and pruned on the alternative sys-
, will last three hundred years and be vig-
us in its bearing.

n general, no manure is or was used by
ive Californians on these vines; there may
e been an exception of one or two persons,
not to my knowledge, and, of course, the
settlers have no occasion, as yet, to ma-
e their new plantations, which are still
enough without it.

GATHERING THE GRAPES.

o grapes ought to be gathered for making
e until they are ripe, and, in fact, over
. As long as they do not stick, when
dled, to your fingers, like syrup or honey,
y are not fit to make a generous wine.—
e persons hurry on the vintage, in fear
the frost will hurt the crop. This is er-
eous, the frost improves the ripened
pes, and makes the wine far superior to
of grapes gathered before the frost.—
world-renowned King of the Wines, as
Tokay is called, is made in Hungary from
pes gathered very often under the snow,
never before a good frost has shriveled
m.

he gathering is simple and expeditious.
man with a basket can gather from 1,500
,000 pounds of grapes a day in this country,
ere is a cart close by to take the grapes
he press, provided the vines are summer
ned and not entangled.

ersons having small vineyards will do
l to gather their grapes in the morning,
not later than nine o'clock; for if gath-
in the heat of the day the fermentation
be too vehement, which is not good for
ing the best of wines; but when the
yard is large, other remedies must be em-
ed to prevent a too hasty fermentation.

[*To be Continued.*]

☞ Create not imaginary difficulties;
icient are the real ones we have each
ncounter, in the course of our lives.

☞ Mortal things fade; immortal things
ng more freshly with every step to the
b.

For the Ladies.

FLORICULTURE.

GREENHOUSE.—The Greenhouse will now present a gay appearance, if it has been properly managed. Primula, Cineraria, Hyacinth, Orange, Accacia, Mignonette, Roses, ten weeks' stock; also Camelias, which have been kept back to make a display the present month, should be now in bloom. Among those plants which are small, but beautiful, we opine the Lily of the Valley will receive a due share of attention. We do think a boquet of Lily of the Valley and Neapolitan Violets, edged with Violet leaves judiciously arranged, is the most simple, yet most lovely boquet ever made. They are charming for small hand boquets. We beg leave to dissent from the way boquets are generally made: we have frequently seen ladies holding boquets, so called, but in reality bunches or bundles of flowers, a perfect load, tiring in the extreme to what we should term the unfortunate possessor. When a boquet is of such weight as to tire and annoy, the enjoyment attending it has certainly passed away. We are therefore in favor of small but handsome boquets for the hand.

PELARGONIUMS.—Those intended for early blooming, may be tied out, a neat stake to support each truss of bloom. Do not set them too close to each other, or the foliage will suffer. The temperature should never exceed 55° Fahrenheit; it is better to keep them at a temperature of 45 to 50°; by this treatment they grow strong and bushy. Weak liquid manure, once per week, will be found beneficial till the flowers commence opening, when it may be dispensed with; on the appearance of green fly fumigate immediately.

W. H. HAMILTON,
Landscape Gardener,
Raleigh, N. C.

Flower Garden.

ROSES.—If not already pruned, no time should be lost in performing this very necessary operation. Thin out the weakest shoots, cutting them off close to the old wood. Shorten in the strong growth of the previous year to about four eyes or buds from the old wood, if standards. The climbing varieties of course require treatment according to the trellis to be, or is already covered. Where new trellis or rose arbors are in contemplation, we would strongly urge the use of lattice wire, as the most neat, durable, ornamental and in the end cheapest. It should be painted some neutral color, to preserve it from rust.

TULIPS.—Where fine flowers are an object, care must be taken supports are placed to the flower stems before they receive any injury from the winds. Once they are bent down, all the care and skill that may be brought to bear on them will fail to restore the damage they have received. Stir the ground occasionally, if protected by shades; see none suffer for water.

HYACINTHS.–This lovely tribe of bulbous rooted plants are universal favorites, and we may add, no flower is more worthy of distinction. It is a flower for the million, prized alike by the rich and poor. Rain water is best for those cultivated in glasses. When planted in beds of the flower garden, it is best to support the blooms, to prevent accidents by winds or other causes.

ANNUALS.—A few seeds of each favorite may now be sown on a moderately warm bed, well protected from frost; the object of course being early flowers.

Culinary Department.

HOT BED.—Cucumbers should be syringed morning and evening in fine weather. Allow the heat to range between 75 and 85°; the latter degree of heat, when the sun is shining on the glass. If t plants suffer from the sun's rays, shade the lightly the hottest portion of the day.

Egg plants should be placed simply small pots and allowed a warm corner the cucumber frame.

Tomatoes should also be potted. T few required for early use do not need high a temperature as the Egg Plant.

A general sowing of seeds should made this month. Let nothing be forgo ten, as this is our principal month for so ing all kinds of small seed. The midd to the end of the month will be time enou for the main crop. Keep up successio of all crops needed most.

W. H. HAMILTON,
Landscape Gardener,
Raleigh, N.

ERRATA.—From carelessness in corre ting the proof sheets of this Departme in the February No., some ridiculous m takes were printed. The intelligent re der was doubtless able to correct them, a hence we deem it useless to point them o We will try and guard against their recu rence.

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J. D. McDowell

APRIL NUMBER, 1860.

NORTH CAROLINA PLANTER.

A MONTHLY

J. M. McDowell

Southern Agricultural Journal:

DEVOTED TO

THE IMPROVEMENT OF SOUTHERN FARMING, HORTICULTURE, FLORICULTURE, AND THE DOMESTIC AND MECHANIC ARTS.

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April 2, 1860. 4—3m

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great degree of moisture it causes the plant
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October, 1859. 16—3m

THE NORTH-CAROLINA PLANTER.

Devoted to Agriculture, Horticulture, and the Mechanic Arts

Hæ tibi erunt artes.—VIRGIL. { These are the pursuits to which you should direct your attention.

VOL. 3. RALEIGH, N. C., APRIL, 1860. NO. 4.

The actual working and practical results of the free and slave-labor systems compared, as shown by evidence furnished by the United States Census and other public statistics.

BY EDMUND RUFFIN, ESQ., OF VA.

In this, and all like cases, however satisfactory may be the general facts used as premises, or adduced as proofs, such facts and evidences, from the nature of the subject, are liable to be doubted, or objected to as insufficient, by hostile and prejudiced disputants. This is a necessary defect of all discussions by argument of disputable questions and doctrines, and especially where the spirit of party or fanaticism has strong influence. Fortunately for my argument, it has not to rest on reasoning, or deductions, or general evidence, the authority or force of which may be called in question by captious and prejudiced opponents. There have been presented in the last United States Census (for 1850) many remarkable results of the practical and long-continued operations of the free labour and negro slavery system of this country.—This array of practical proofs, and the comparisons and contrasts they afford, will serve as an appropriate and impresive conclusion to the preceding[*] general argument. For the substance of most of the following evidences of this kind, and for the great labour of research and investigation which was required to extract them from the census and other reports, I shall be indebted to a preceding writer, the Rev. Thornton Stringfellow, who has set forth and commented upon these evidences at length in his "Scriptural and Statistical Views of Slavery," (4th edition, 1856,) an excellent and admirable, though plain and unpretending little book. In all the following evidences cited from the census, &c., I shall make use of the valuable labours of my predecessor, and rely entirely on his high authority for the correctness of the citations. My own part of this statistical statement will be but little more than condensing and arranging Mr. Stringfellow's more diffused statements, and by using numerical figures, (instead of numbers expressed in words,) and a tabular form, where suitable, to place the contrasts and conclusions in more striking points of view, as well as in much smaller space.

Mr. Stringfellow has very properly and judiciously taken for comparison the six New England States, and the five most Southern old slave States, Maryland, Virginia, North Carolina, South Carolina, and Georgia. There are remarkable points of similarity between these two great sections of the United States, which make them so much the better subjects for comparison and contrast, in regard to their great difference, in their respective kinds of labour. Both these sections are bordered by the Atlantic—are composed of the older States, and were settled nearly within the same limits of time. They have long had in operation their different kinds of labour and systems of economy. In addition, their respective numbers of free inhabitants, in 1850, were so nearly equal, that they may be fairly considered as equal, for all purposes of argument, as will be done here.

---

[*] An essay before this on a kindred subject.

Until recent investigation and discussion had elicited more truth, it had been claimed by the people of the North and by all the opposers of slavery, and even generally admitted by the people of the Southern States, that the free-labour States of New England were greatly superior to the old Southern States in obtaining the fruits of industry and capital—were richer, and better off in every economical view. Southern capital and industry were almost exclusively devoted to agriculture—northern capital was much more vested in commerce and manufactures, which are deemed much more profitable than agricultural investments. In addition, these pursuits of New England industry were richly endowed with governmental favor and bounty, at the expense, and to the greater impoverishment, mainly, of the southern States.

It has also been especially and loudly claimed, for and by the people of the New England States in the support and the good fruits of religion, and in their religious and moral position and tendency—and that such difference was the necessary result of the blighting and demoralizing effects of negro slavery in the South, and of its absence in the North. Moreover, the early settlers of New England were almost universally devoted to their extremely strict doctrine of religion, and as strict code of morals.—On the contrary, these southern States, (with the small exception of the first Catholic settlers of Maryland, and the Huguenots of South Carolina, were settled by persons not under any influence of religion, and certainly not of better than average morality, and habits of life. Upon such foundations of very different material, and after a long course of trial, the results of the different systems, in these respects, many be judged of by the facts and numbers furnished by the extracts from the census.

Not only the alleged and claimed better moral and business habits of New England, but its bracing climate, deemed so much more healthy than the low country of the Southern States, would promise greater increase of population. The authentic reports of births and deaths will present a very different account—which, with other facts from the census, bearing on other parts of this general question, will now be submitted.

Comparison in regard to Free Population of the Six New England States with the five old and more Southern States—by Census Returns of 1850.

	New England States.	Five old Southern States.	Excess for N. or. *S.*
Total free population in 1850,	2,728,016	2,732,214	S. 2,198
Annual births,	61,148 or 1 to 44	77,683 or 1 to 35	S. 16,535
Annual deaths,	42,368 or 1 to 64	32,216 or 1 to 85	N. 10,152
Number of churches erected and in use,	4,607	8,081	S. 3,374
Valuation of all the churches,	$19,362,634	$11,149,118	N. $8,313,516
Church accommodation for hearers,	1,893,450	2,896,472	S. 1,003,022
Excess of persons over seats in churches,	834,566	....	
Excess of seats over number of persons,	....	164,528	
Number of families,	518,532	506,968	N. 11.564
Number of dwellings,	447,789	496,369	S. 48,580
Number of families without separate dwellings,	70,743 or 1 in 7	10,599 or 1 in 52	N. 60,144
Number of paupers (receiving regular and continued public support,)	33,431	14,221	N. 19,220
Number of native paupers, (excluding foreigners,)	18,966	11,728	N. 7,230
Ratio of native paupers to total population,	1 to 143	1 to 234	
Ratio of all paupers total population, (including slaves,)	1 to 81	1 to 171	
Insane persons,	3,821	2,326	N. 19,45

	New England States.	Five old Southern States.	Excess for N. or S.
Of negroes free in New England and slaves in the five Southern States:—			
Insane and idiots,	1 in 980	1 in 3,080	N.
Blind,	1 in 370	1 in 2,645	N.
Deaf mutes,	1 in 3005	1 in 6,552	N.
Total value of property,	$1,003,466,181	1,420,989,573	S. 417½ mil.
Average value of each white person,	$367	$520	S. $153

Lest the condition of the States refered to should be supposed peculiar, the average of property to each white person will be stated for sundry other particular States as follows:—

Non-Slaveholding States.

New York has for each,	$231
Pennsylvania,	214
Ohio,	219
Illinois,	134
New England, (as above,)	367

Next richest Non-slaveholding States in their order severally as follows: $280, $231, $228, $219, $214; and the remaining States range from $166 down to $134 for Illinois.

Slave-holding States.

South Carolina,	$1,006
Louisiana,	806
Mississippi,	702
Georgia,	638
Alabama,	511
Maryland,	421
Virginia,	403
Kentucky,	373
North Carolina,	366
Tennessee,	247
Missouri, (the poorest,)	168

For all the fifteen Non-slaveholding States in 1850, (excluding California,) the value of property to each white person was,	$533
For the same in all the fifteen Slaveholding States,	439

And even if every slave is counted as if free, and then averaging the division of value of property among the total population, the superiority would still remain to the slaveholding States—the share for each inhabitant, including slaves, being $291; and for all the non-slaveholding States, as above stated, $233.

This last mode of estimation will serve completely (and it is stated for that purpose) to shut out an objection that would be ready to oppose the previous estimates; that is, the counting the slaves as property and not as persons. But whatever force there might be in this objection in other respects or with other reasoners, Northern anti-slavery partisans have no claim whatever to urge the objection, for they have persistently and zealously maintained that slave-labor, and investments in slaves for use, were more unprofitable than the employment of free labor. It is, therefore, entirely proper and called for, that this, the great argument and position of opposers of slavery—(Northern and Southern) shall be thus met, by showing the greater profits of slaves as property, compared to other investments for industrial operations.

A few more particular remarks will be offered—either as comments on some of the foregoing items, or on other points.—For these also, I am indebted to Mr. Stringfellow's selections of statistics.

In the five old Southern States (under consideration) the births (of free population) exceed those of New England by 27 per cent; while the deaths of the latter exceed those of the former by 33 per cent.; or added together, making a difference of 60 per cent, in favour of the increase of Southern population. In this estimate, the slaves are not included; but the census shows that among them also, the births are more numerous and deaths fewer, than among the free men of New England.

In the city of New York, in 1847, there were received at the principal alms houses, 28,692 persons—and out-door relief from public funds was given to 34,752 more—making in all, 73,264; or 1 in every 5 inhabitants of the city "dependent more or less, on public charity."

In the city of New York alone, in 1848 and 1849, there were sent to the States Prison, the Penitentiary, and the City Prison, 1,235 criminals—which (says Mr. S.) "equals all in the 15 slave States together. In the State of New York, with a population of 3,097,304, there were 10,279 convictions for crime; and in South Carolina, with a total population of 668,707 (considerably more than one-fifth,) there were only 46 convictions for crime." If the free and the slaves of South Carolina had furnished criminals in proportion to New York, the numbers would have been 2,218 instead of 46 only.

"In 1845, according to her statistical report, Massachusetts had 7 of every 8 of her marriageable young women working in factories, under male overseers."

"Pauperism in Massachusetts and New York, according to the State census, between 1836 and 1848, increased ten times faster than wealth or population."

The foregoing numerical statements, both in the table and elsewhere, will speak for themselves to every reader who will examine and compare the details. But if more extended comment is needed by any, or deductions to be more fully and forcibly set forth, I would refer the reader to the statistical portion of the excellent essay by Mr. Stringfellow, to which I again acknowledge my especial obligation for the substance of the foregoing statements, as well as for my share of the common obligation of the whole southern people, and also of the right-minded northern, for his plain and strong exposition and defense of truth.

I will add some other facts, of like kind, on other good authority. Preceding quotations have shown the great excess of crime, among the whites of the northern states compared to those of the southern. The following statistical facts will furnish additional evidence that the northern free negroes are far more debased, and addicted to crime than the whites—so little has been effected by their freedom, and equal civil or political privileges, and all the aid of northern philanthropy, for the moral improvement of the free negroes, or to prevent their continued degradation.

The Rev. Dr. Bascom, in his Review of the Methodist Controversy, p. 57, (quoted by Estes,) states the following proportions of the negro and white populations in several states, and of criminals of each:

Ratio of free negroes to total population:

Massachusetts,	1 in 74,	which furnish	of total criminals,	1 in 6
Connecticut,	1 in 34,	"	"	1 in 3
New York,	1 in 35,	"	"	1 in 4
New Jersey,	1 in 13,	"	"	1 in 3
Pennsylvania,	1 in 34,	"	"	1 in 3

In all the northern states, "one-fourth of the whole expense of the prison system is incurred by crime committed by [the free negroes, making but] one-twentieth part of the population." "The same is true as to the pauper expenditures of all the northern states."—*Id.*

The next following statistics of pauperism and crime, I have extracted from the official tables of the census of 1850, as presented in the "Compendium," prepared by order of Congress, and which serve to compare, in these respects, the states of Massachusetts and Virginia.

	In Massachuscets.	In Virginia.
Free negro population,	9,064	54,333
White population,	985,450	894,80
Total free population,	994,514	994,133
"Whole number of paupers supported in whole or in part, within the year ending June 1," 1850, [out of, as well as in poor houses,]	15,777	5,118
"Annual amount of support,"	$392,715	$151,751
"Paupers *in Poor Houses*, June 1, 1850," aggregate,	3,712	1,539
Of which were free negro paupers, June 1, 1850," aggregate,	80	186
[Or 1 pauper free negro to 101.84 for Mass., and 1 to 292 for Va.,		
"Whole number of [negro] criminals convicted within the year," [including slaves,]	7,250	107
"In prison, June 1, 1850,"	1,236	313
Of Free Negroes—"Convicts in Penitentiaries, 1850," and "persons in Jails and Houses of Correction," [added together,]	139	95
[Or 1 convict in every 63 free negroes for Mass., and 1 in 572 for Va.]		

Abstract from "table 182. Rates of Improvement."

	Whites.	Free colored.	Ratio of white to col'd. as 1 to
"Virginia—Ratio, for 10 years, ending 1850 of convicts in penitentiaries to the average population [of the respective classes?] as 1 to	23,003	3,001	718
Mass. in the same period, [as 1 to]	7,587	727	958
Mass. for year ending Sept. 30th, 1852, according to the population of 1850.	6,527	488	1.337

As slaves are not referred to under that
me in this table, and as criminal slaves
Virginia are not sentenced to confine-
nt in the Penitentiary, for punishment,
is inferred that the "average population"
s meant to includ the only classes named,
whites" and free "colored." If so,
en the ratio of white convicts, for 10
ars, in Massachusetts was more than three
es, and of free colored largely more than
r times as great, as respectively of these
sses in Virginia. The later report of
aschusetts, for 1852, much increases
previous disproportion and excess, and
ecially of the free colored criminals."
however, the slaves of Virginia were
signed to be included in the "average
pulation," then that understanding and
rection would serve to lessen the above
imates of excess of criminals by about
e-third—still leaving an enormous excess
Massachusetts over Virginia.

In table 179, page 166, there is stated
number of colored convicts (including
ves and free) for every 10,000 of such
pulation, then in "States Prisons and
nitentiaries." In Massachusets the num-
was 46,377, and in Virginia only 1,-
9, in 10,000 of the total colored popula-
n. It should be observed, however, that
st of the minor criminal offences of slaves
punished by their masters, or by sen-
ce of a magistrate, and do not appear in
blic reports and records. This omission,
haps, may serve to cause even the larger
tion of the apparent vast excess of col-
d criminals in Massachusetts. But on
other hand, the previous items of the
whole number of criminals, &c, and "in
son June 1," must have included all the
prisoned slaves, and thereby served im-
perly to increase, by so many, the sta-
number of colored convicts of Virginia,
so lessened the true comparative ex-
s, and disproportion of crime of the free
ored class in Massachusetts. But after
king every due allowance from these or
y other defects or omission of the census
orts, there will be enough of indisputable
dence to show very great excess of both
perism and crime in the whites of Mas-
husets, and all New England, over Vir-
ia and the other older southern states—
till greater excess of pauperism and crime
the northern free-negro population over
t of the slave-holding states—and still
more of free negro criminals, every where, so far as known and believed, over slaves convicted for like offences.

There is one condition of moral debasement and depravity which is not punished by law, or noted among criminal offences, but which is extremely common in the north, and so rare in the south, that cases of parricide and incest are not more unfrequent and remarkable occurrences. This is the marriage, or cohabitation, of white women with negro men. It is notorious that such connections are of common occurrence, and excite there no such surprise, deep disgust, or popular indignation, and prompt repression, as every such offence would in the slave-holding states.—As a sample, I will quote the case of a single northern city only. Detroit, as reported by one of its own newspapers, (the "Free Press,") in a recently published paragraph, which has been copied by many other papers. "The extent to which amalgamation is carried in this city, is really beyond the knowledge of nine-tenths of the inhabitants. There are hundreds of families, the parents of which are of opposite colors, and although the marriage of whites and blacks is illegal and void, yet they live together and bear children. It is a remarkable fact, that out of all this number, no instance exists where a white man lives with a black woman. They are all white women, and generally the blackest kind of men. * * * * * *
The same condition of affairs prevails on the other side of the river to the intense disgust, we are happy to add, of all good and loyal Canadians."

The foregoing statistical facts show a remarkable superiority of the slaveholding section in view, over the New England States (and would over all the free States,) in almost every thing that is desirable to all, or of which the possession has been made the pride and boast, or ground of self-laudation, of the people of the North. This is especially noticeable in the statistics of religion and morals—and also in regard to population, wealth, pauperism and crime. The measure of true religion of any people cannot be learned from statistics—though it may be indirectly inferred from the amount of crime. But whether there is more religion in the South, or not, there is certainly far less immorality and crime—and far more of facilities and accommodation for public worship and religious instruction, and both for blacks and whites, than are provided in the North. "Ecclesiastical statistics," says Mr. Stringfellow, "will show an increased amount of prosperity in religion [in the Southern States] that is overwhelming."

Despite our sickly climate over a large portion near the coast, the births are more numerous, and the deaths by far fewer, than in New England.

Instead of our labors and investments in slave-labor being less profitable than northern operations, it is manifest that the slave holding States are much richer than the free States, and to make this result the more striking, even if counting every slave as if free, and supposing the whole property to be divided among all the population, (slaves included,) still on this general average, the individual share of every one, bond or free, would be considerably larger than in the free States. The greater number of houseless families, of paupers, of criminals and of insane—as well as of deaths—all show in their calamitous effects that there is much more suffering, of both body and mind, in the North than in the South, whether comparing total populations, or whites only—or our slaves to the free negroes of the North. And, generally, these statistics clearly show that all the general evils—physical, economical, moral, or mental—which have been falsely ascribed to the existence and injurious influence of slavery, are to be found existing in much greater number and force in the non slaveholding, or free-labor communities of the North, which have especially denounced and exaggerated the demoralizing effects of slavery, and pharisaically claimed for themselves a superiority in every respect over slave-holding communities.

This essay, contrasting slave labor at the South, with free labor at the North, should be in the hands of every man in the United States. Every paper, whether agricultural, religious, literary or political would do well to give it an insertion.—Much has been spoken, written and published on this all absorbing subject; but it has been left to Mr. Ruffin, of Virginia, to show, not only by reason and argument, but by facts, figures and statistics, the superiority and advantages of slave labor as it exists in the South, over and above free white labor in the North. We have more wealth, better health, fewer deaths, more births, less crime, fewer convicts, lunatics, suicides, bank robberies and broken merchants in the slave than free States, according to population. Our slaves are better fed, clad and cared for, and work less than the free white operatives at the North. In the political world, Southern men are more reliable, in the religious more moral and pious, and in the commercial more punctual, solvent and honest.—This superior moral, social and political condition of the Southern over the Northern States, is attributable in a great degree to the institution of slavery; and yet strange to tell, the majority of the Northern people would dissolve this union to abolish slavery. We have submitted too often, too long to the encroachments, insults and injuries from the North; it is in our power to prevent them, to redress them. Non-intercourse will teach them better sense, better manners, and enable them to see their own interest. Already they have felt the smart of this policy; hence their union meetings to deceive the South. When they put down their abolition societies, break up their underground rail roads, acknowledge the constitutionality of the fugitive slave law, submit to its execution, and repeal their laws prohibiting the confinement of slaves when taken up in their jails for safe keeping, acknowledge the decision of the Supreme Cour in the Dred Scott case as the supreme law of the land and abide by it, silence their their Parkers, Beechers and other infide pulpit slang-whangers, demolish their abolition presses, lynch their editors and publishers, prevent their men from stealing our slaves and drive those now among them home, where they can be fed and lothed, we will re-open our trade with hem, not before. Let us at once and forver define our position; say to the authors f the irrepressible conflict and the advoates of squatter sovereignty, that we will esist them at all hazards and to the ast extremity, that the corner stone of our ndependence was laid by the hands of our athers and cemented by their own blood, nd that we their Southern descendants nean to stand by it. Dissolve this Union nd acknowledge the failure of the first nd only experiment of self-government at he whim and caprice of a horde of Northern ell-hounds? We will not; the North shall ot. Close the door of this asylum for the ppressed and down-trodden of the world? Never. But, after we subdue the fanatiism of the North by bringing the abolitionists to their senses, we have an evil at ome to encounter, an evil fell sister to Northern abolitionism, the African coloniation fever. When the Colonization Society was first established its ostensive obect was the colonization of the free people f color, the great object at the time was o prepare the way for the abolition of laves and slavery. This has now been vowed by the emancipationists of the South, and over which the Sewards, Garisons, Phillips, and other demons incarate are chuckling with ineffable delight. Colonization at the South is abolitionism in disguise.—ED.

LOOK HERE.—It is estimated that Engand pays annually three hundred million f dollars for manure—more than the enire commerce of that country. The total alue of a year's crop has been reported to Parliament, sometime ago, as being about hree thousand millions of dollars—the rop includes the animal as well as the egetable. The turnip crop has been stimated in that kingdom to be worth ifteen hundred millions. Farmers, lend our money to your lands, and it will pay better per cent.

Planting.

The general principles have been given which should govern the mechanical and chemical preparation of the soil. By plowing, and draining, it is opened up, and moisture, to receive such chemical appliances as will improve its composition, and also to be penetrated by the roots of cultivated crops. By appropriate manure, it is supplied with an abundance of all the food wanted for the nourishment of these crops.

When the ground is thus made ready, the next object of attention, before we bring the seed and the soil together, is to know that we have seed of the best kind and quality.

SELECTION OF SEED.—This is a matter of the highest importance to good farming. "As a man soweth, so shall he reap," is one of the sacred proverbs, no less true in the physical than in the moral world. The farmer is apt to reap, not only the same *kind*, but also the same *quality*, as that which he has sown. A little shrivelled grain, with a poorly-developed embryo will generally send up a weak and sickly stalk, able to bear only such grains as that from which it sprung; while, on the other hand the vigorous germ, found in the full, plump grain, forms at once a strong foundation for a healthful future growth.

If the farmer has seed of the right *kind*, he may, with a little care and trouble, improve its *quality* very considerably in a few years. In wheat, the first portions that ripen are usually the best. These should be first cleared of rye, cockle, and other foreign plants; then cut as soon as ripe, and kept apart from the general crop, for seed. If this process is repeated for several years, the effect will be seen in the improved quality, and earlier ripening of the wheat.

Seed corn should be selected in the field. The largest ears, from those stalks which bear two ears, are believed by many of our best farmers to be most desirable for seed, because they are thought to be most likely to yield twin-bearing stalks for the next crop. There is good reason for this belief, from the fact that the ordinary varieties of Indian corn, when well cultivated on good soil, and not too much crowded for full development, generally yield at least two ears from every stalk; and where only an occasional stalk has an opportunity of attaining its fullest growth, this is indicated by the production of two ears. In selecting the best ears, then, from such stalks, we have the product of the most vigorous and full growth in the crop. Those who have tried this method of selecting their seed, testify that the number of double-eared stalks can thus be grealty multiplied in a few years. It is a subject worthy of further careful experiment.

Every one who has not the proper kind of seed on his farm should at once make a change, even if he should be compelled to pay what he may regard as a very high price for seed of good quality. Changes of wheat and other grains, from one soil to another, of different character, and from one climate to another, seem in many cases to prove beneficial. Wheat from the shores of the Mediterranean, and even from Central and Northern Europe, is generally more free from disease, and often escapes the ravages of insects more entirely, than the varieties which have been long cultivated in our own country. Grains transported from latitudes in which the seasons is short, to those in which it is much longer, ripen early, at least for a few seasons; but they finally appear to adapt their period of growth and maturity to the new climate. Our Government, through the agency of the Patent Office, is doing our agriculturists good service, by giving them an opportunity of trying various kinds of seeds from all parts of the world.

In determing the variety of wheat or corn to be planted, two circumstances should have their influence. (1) The *productiveness* of different varieties should be, as far as possible ascertained. The different kinds of wheat and corn often vary in their relative products per acre, so much as to make this an important point of attention. The labor of cultivating an acre of land in a variety of corn which yields 80 bushels, is no greater than that of cultivating the same quantity of land in another variety which yields only 50 or 60 bushels; and the same is true of wheat, or any other grain. (2) The difference in the *market value* per bushel must not be disregarded. Twenty bushels of white wheat, at $1.25, are equal in value to twenty-five bushels of red wheat, at $1,00.—The *nutrive value* of corn to be used in feeding farm stock, should be estimated, in selecting the kind to be planted. Yellow corn is regarded by stock-raisers as superior to the white, in its fattening properties. For bread, the white variety, with clear, flinty grain, is most highly esteemed

The oat grain (*Avena Stativa*) degenerates, to some extent, in the Souther States, after a few years' cultivation. Th stalk may still grow with all the luxurianc desired, but the grain gradually become less full and heavy. For this reason Southern farmers who wish to cultivat oats, should frequently (at least once i four or five years) renew their seed by importation from a more northern latitude.

Preparation of Seed for Planting.—Al kinds of seeds should be *thoroughly clea of everything* which can spring up an grow at the same time with the cultivate crop. Indian corn is easily separated fro every other kind of seed, by the peculia manner of gathering it; but not so wit wheat. Everything that grows with whea must be gathered with it; and everythin that ripens about the same time, will b still represented by its seeds, when th grain is threshed. Hence the great diff culty of keeping seed-wheat clean. Sprin wheat is liable to become polluted with oat because it has the same season of growt while oats sown with winter wheat is mo apt to have rye, cockle, and cheat (ches mixed with it, as these, like the wheat, a biennial, and ripen simultaneously with i

In order to estimate properly the importance of having clean seed, it must b remembered that these foreign grains d not simply injure the *quality* of the flo produced from the crop, but they also d minish the *quantity* of the grain, just t the extent of their own presence. Th may not be entirely true of oats and ry for they are not entirely worthless; but c cockle and cheat it certainly is true: fo the same ground which produced a stal of either of these plants, would have produced a stalk of wheat, if wheat had bee sown in their stead.

A few bushels of wheat may be carefu ly picked out, head by head, and sown o a piece of *clean* and good soil; and a supppl of clean seed, sufficient for the whole of th next sowing, be thus obtained.

STEEPING SEED-GRAIN —A more promp and vigorous germination, and a more rapi early growth, may be brought about, in a most all kinds of grain, by steeping the seed in suitable solutions. If the soil is then good, the early growth, thus urged forward, will continue; but steeping the seed in a solution of *one* substance, can never make up deficiency in *other* elements of fertility in the soil; nor can it compensate for *defective plowing*, or negligence in other modes of tillage.

The solutions used for steeping sometimes have the effect of destroying the eggs of insects, and the germs of injurious fungi, such as smut. Or, if these are not destroyed, their influence may be, to a great extent, counteracted by the increased vigor given to the young plant by the fertilizing salts in which the grain has been soaked.

Several salts may be used in the same solution, so as to give a variety of such food as the plant may require. The salts most frequently employed for this purpose are those containing potassa, soda, and ammonia, combined with such acids as are wholesome for plants. The ammonia salts, like the ammoniferous manures, are generally more powerful in their influence than the salts of the other bases. The sulphate of ammonia and sal-ammoniac are the cheapest salts of that class; but urine may be used with like effects, on account of its ammonia, and at much less cost. Nitrate of potassa (saltpetre) nitrates and sulphates of soda and magnesia, phosphate of soda, and common salt, may all be employed in the preparation of steeping liquids. Some of these are within the reach of every farmer, and may be used at a trifling cost. The collection of urine requires only a little management, while saltpetre and common salt are found in every wayside store throughout the whole country.

The following receipts may be useful as general guides in preparing solutions.—They are suitable for any of the cereal grains.

For every bushel of wheat or corn, take 4½ gallons of water, and dissolve in ti one pound of saltpetre and one pound of common salt.* Pour the solution upon the grain in a tight vessel, and set it aside in a warm place to soak for 24 or 36 hours. Then drain off the surplus water (preserving it), and mix with the grain, while wet, as much plaster as will adhere to it, or, rather, as much as will keep the grains from adhering to one another in planting. About half-a bushel of plaster is sufficient for a bushel of grain. Caustic lime, used in the same way, is believed to prevent *smut*. The water may be used a second time, for about half as much grain, by dissolving a little more saltpetre and salt in it.

A better solution than the preceding is formed by dissolving, in 4½ gallons of water, for each bushel of grain to be soaked, ½ lb. sulphate of ammonia, ½ lb. saltpetre, ½ lb. Epsom salts, and ½ lb. common salt; and, if phosphate of soda can be obtained, add ½ lb. of it. Soak the grain and mix with plaster, as in the first receipt.

To 4½ gallons of urine, add a half-pint of sulphuric acid (oil of vitriol), ½ lb. Epsom salts, ½ lb. common salt. The solution is to be used as before directed. In this case the sulphuric acid unites with the ammonia of the urine, and forms sulphate of ammonia. This solution is improved by standing a day or two before it is used.

Other solutions may be used, as the convenience or chemical knowledge of the farmer may suggest. A strong decoction of manure, formed by passing water through a barrel or box compactly filled with fresh stable-dung, or that collected from hen-roosts, with the addition of a little sulphuric acid, nitre, and salt to the liquid, after it has passed off, will give a solution closely resembling the one last mentioned.

When the quantity of grain to be prepared at one time is large, it may be more convenient to use a smaller amount of liquid, and apply it in a different way.—The following plan will be found convenient: For every bushel of wheat provide 1½ gallons of water, and in this dissolve the salts as above given. Spread the grain upon a close floor, to the depth of 5 or 6 inches, and with a common water-sprinkler apply about one-third of the solution. Let it stand two or three hours, stirring the mass occasionally. The grain will in the meantime have absorbed most of the moisture; then sprinkle over it another third of the solution, and let it stand 24 or 36 hours.—Just before it is to be sown, let the remaining third of the solution be applied; and while the grain is still wet, mix it with plaster or caustic lime, or any fertilizer you may wish to sow with it. If no pulverized fertilizer is to be used, all the liquid should be applied as soon as the grain can absorb it, so that it may stand at least 24 hours after the last portion has been applied.—The grains will then be sufficiently dry upon the surface to prevent their adhering to each other in sowing.

Time of Planting.—This must vary widely, even for the same crop, under variations of climate; and also, to some exposure, even in the same climate. It is, therefore, difficult to lay down any rules, except those of the most general character. Crops planted in Autumn, such as wheat and rye, should have time to form a good strong root, before Winter sets in. The experience of the most successful farmers in any particular section of country, is the best guide for the young farmer, at least until his own experiments have been tried sufficiently often to result in *experience.*

Cold, clay soils, and those having a northern exposure, require earlier sowing than such as are warmer, from their composition or southern exposure; for the Fall growing season is shorter in the former than it is in the latter case.

In the Spring, oats and Spring-wheat crops may be sown as early as the ground can be conveniently prepared. This will give the force of hands and horses an opportunity of making preparation for planting other crops, especially corn, which always demands thorough cleaning and breaking up of the soil, in order to secure a good crop. Corn should be planted late enough to escape the frosts of Spring. It is a crop which requires much light and heat to cause a rapid growth, and will, therefore, make no great progrees so long as the days are short and cool. Hence, we find in the latitude of Virginia that corn, planted about the first of April, has grown very little more by the last of June, than that which was not planted till the first of May. The planting season for corn has, then, a tolerably wide range. Good crops are made from plantings ranging over the whole period between the first of April and the middle of May. Farther south the planting period is still longer.

The chief advantages of early planting for corn are, in the first place, that, in tobacco-growing regions, the "working" (tending) of the corn, may be as far advanced as possible before the planting of the tobacco crop requires attention; and, in the second place, in wheat growing regions, that tending of corn crop may be pretty well completed before wheat harvest begins.

For *potatoes* there are two favorable seasons for planting. The first, very early in the Spring; the second, late in June, or, in more southern latitudes, the first of July. The potato is not capable of bearing very hot weather while at its highest stage of growth. The weather, at that time, should be moist and mild. When potatoes are planted about the last of March or first of April, the tubers are formed chiefly during the month of June; and, although this is a warm month, the ground has not become so hot, nor usually so dry, as it is in July. Hence, they are tolerably well matured before the scorching weather of midsummer sets in. If they are planted in the early part of summer, they come up and pass through the stage of growth proper for cultivation, by the time the very hotest weather has passed. Then, if they get good rains during the latter part of August and early part of September, fine tubers are formed, and a fair crop is realized.

Beans and Peas.

Value.—There is a large class of plants which have their seeds enclosed in a sort of bivalve pericarp, usually called a "pod." These are called "leguminous" plants.—The different kinds of *bean* and *pea* are examples of this class. The varieties of *clover* are also leguminons, having their seeds enclosed in *pods.* Red clover has usually one seed in every pod, but some kinds of white clover have several together in the same pod.

This whole class of plants is remarkable for the quantity of *nitrogen* they contain. The nitrogen is chiefly found as one of the constituent elements of a proteine body, which we have called "legumen." All the proteine compounds have been spoken of as possessing a high nutritive value, and as forming a most important ingredient of animal food. They bear a relation to animal nutrition somewhat similar to the relation of ammonia to plant nutrition.—The legumen of beans and peas is so abundant as to place them above both wheat and corn in nutritive value. On this point more will be said hereafter. The stalks of these plants also abound in proteine matter, and in that respect resemble clover hay in composition and value, and hence make excellent rough forage for stock.

We have learned that, when proteine

substances undergo decay, *ammonia* is always one of the products. This has also been mentioned as the most valuable ingredients in organic fertilizers. If, then, bean and pea crops are plowed into the soil at the proper period of growth—that is, at the period when they contain the greatest amount of proteine matter—considerable quantities of that most important fertilizer, ammonia, are generated in the soil. Clover was once regarded as almost the only suitable crop to be employed as green manure, but experience has shown that other leguminous plants have a similar value; and, in some climates and soils, certain varieties of beans and peas seem to be even superior to clover for the purpose of fallowing.

Varieties.—Different latitudes require different varieties. Those only which have a comparatively short period of growth, are adapted to the Northern States. Such are the China Bean, Horse Bean, and the different varieties of Field Pea. Those which require a longer season and more hot sun, are confined chiefly to the Southern States. There is a species of *bean* cultivated extensively in some of the older Southern States, of which there a good many varieties. All the varieties are embraced under the general names of "Cornfield Pea" and "Southern Pea." Mr. Edmund Ruffin, Sr., in his valuable Essay on this crop (for which a premium was awarded by the Virginia Agricultural Society, 1854,) enumerates *nine* varieties.—"The buff-colored pea usually called either the *cow* or *clay pea*." "The Bass (red) pea, used extensively on the Lower Roanoke, in N. C." "The *black eye pea*, of several varieties, was formerly most generally known, and indeed was almost the only kind cultivated." "The early black pea has perfectly black and large seeds."—"The mottled or shinney pea, which has been so much celebrated in latter years, differs in some respects from all others.—The seed are of a light brownish color, thickly streaked or mottled with deeper brown." "Large black or Tory (late) pea." "Small black and late pea." "Green-eye white pea." "The small green or bush pea"—sometimes called "Chickasaw" and 'Oregon Pea." But these are by no means all the names applied to the varieties of "Southern Pea;" for the variety passes under different names in different sections of the same State. "This kind only, of all enumerated and described here, seems to be a true *pea*; and, therefore, is not of the same species with all the other kinds here termed varieties of the Southern Pea."

Climate.—The different species of bean have the quality of gradually adapting themselves to different latitudes, at least to some extent. If the pods which first come to maturity are always selected for seed, the time of ripening may be made to occur several weeks earlier, after a few year's culture. At present, the Southern Pea is not much cultivated north of 37° 45′, nor will many varieties come to maturity so far north as this, in an ordinary season.—But with proper attention several of them might, most probably, be adapted gradually to still higher latitudes. Their great value, for both forage and manure, would certainly justify a fair experiment on this point.

Some of the earlier kinds, such as the "Early Black" and the "Shinney," are thought to be best adapted to the climate of Virginia; taking into consideration the time of maturing, and their productive value for feeding and fallowing. For table use some of the lighter colors are generally preferred, such as the "Black-eye" and "Green-eye White Pea." In more southern latitudes, the "Shinney," "Clay," and "Bass," are among the varieties preferred, and most extensively cultivated.

Soil.—Crops of this class will grow well on almost any kind of land not deficient in lime. The best soil for beans is a warm, sandy loam, of *medium* fertility. A very rich soil produces a most luxuriant growth of vines, especially in the "Southern Pea;" but the quantity of seed is then but small. On medium quality of soil the crop of vines is not so heavy, but the grain crop very abundant, provided the culture and season have been favorable. The *very poor* soil will generally produce a crop sufficient, when turned under, to add considerably to its fertility. This is proverbially true in the culture of the Southern Pea. Land in lower Virginia, which "will not produce a Black-eye Pea," is regarded as in rather a hopeless condition. South of 37°, almost any soil may be restored to fertility from the most exhausted condition, by cultivating the pea, with the application of some form of *lime;* either *marl*, *caustic lime*, *gypsum*, or *ashes*, attended with proper rotation, and as frequent fallowing as possible.

Plowing, for bean and pea crop, should be deep and thorough. The roots penetrate a well-broken soil to a great depth; and as the plant gathers mineral substances largely through its roots, especially lime and potassa, with sulphuric and phosphoric acids, these will be transferred from the lower to the higher parts of the soil, and be left by the decaying crop in a good condition to form the food of succeeding crops of grain, tobacco, cotton, etc.

PLANTING.—The methods adopted for planting may vary with the object to be attained. If the crop is cultivated for its grain and forage, the largest yield can be obtained by cultivating in rows, varying in distance according to the kind of bean or pea to be planted. The varieties which grow erect (bush beans) may be planted in rows two or three feet apart. Those which spread their vines, like the Southern Pea, should be in rows from three to four and a half feet. The seed may be drilled in the rows, or planted in separate hills. If the object is to prepare a crop for fallow, the land should be well prepared, and the crop sown broadcast, and covered with the harrow or cultivator.

The Southern Pea has been cultivated in the Southern Atlantic States from time immemorial. Some of the methods pursued in Virginia, and the States farther south, are the following;

1st. "The oldest and still most extended culture [in Virginia], is to plant the peas after and among corn. When the corn is mostly about 8 or 10 inches high, and has been just plowed and hoed, peas are planted, either in the narrow intervals between the stations of corns if in drills; or otherwise, in a plowed furrow, the last made by the plow in the middle of the wide intervals between the corn rows. In either case, usually 10 or 15 peas are dropped together, and come up and grow in acluster. So many seeds are put together, for the young plants to better force their passage through the earth. But some experienced cultivators of North Carolina think that 5 or 6 plants together, produce better than a greater number. One more plowing is all that is afterwards given to the corn—which, at very little more trouble, is all the culture required for the peas.

The next most extensive, though, in Virginia, a very recent mode of pea-culture, is also as a secondary crop amongst corn, but made by sowing broadcast, when giving the last horse tillage, and covering the seeds more or less perfectly by that tillage process. This costs but the seed and the labor of sowing. The crop all goes for manure, and is seldom ripe enough (in Virginia) for good manure.

The third mode, and, as I think, the cheapest and best, to raise the pea-crop for manuring, is to sow the seed broadcast, on a separate field, or without corn."—*Edmund Ruffin's Essay, Va. S. Ag. Soc.*

"In sowing peas broadcast as a fallow crop, in preparation for wheat or other crops, the land should be broken up in the Winter deeply, and about the first week in June (in our latitude), the peas sowed at the rate of one bushel or five pecks to the acre, and either harrowed in with a heavy harrow, or plowed in with single plows, according to the state of the land."—*P. M. Edmondston, of North Carolina.*

"In planting as a separate crop, break up the land, if possible, in Winter; and at the time of planting (which in this latitude is best during the first fifteen days of June), run off the land in rows 4, 4½, or 5 feet distant, either by running one furrow, or listing with three furrows, according to the condition of the land. If it is grassy, it should be listed—drop the peas from two to three feet distant in the row, from ten to fifteen peas in a hill, and cover with the hoe, harrow, plow, or cultivator with the front hoe removed. After the peas have made twoor three of the second leaves, run the bar of the plow as near as possible, throwing the earth from them, as in the first working of corn, and if neccessary, through out the middle and run over them with the hoe, cutting out the grass and weeds, and a little after the vines have commenced to run, plow again throwing the earth to them. This is all the cultivation necessary; and on fertile land, with favorable seasons, it will give a good return for the labor spent—say an average of sixteen or twenty bushels to the acre, which, at seventy-five cents per bushel, will equal twelve or fifteen bushels of wheat, at one ollar per bushel. This method of plant-ig will take about one peck and a half, r three half-pecks, to the acre."—*Idem*.

This last method is best when the peas re to be gathered, not only because the ode of culture brings a better crop, but ecause of the greater convenience of gath-ring. It has the further advantage of aving the land in a condition free of grass nd weeds, and hence in a better state of reparation for the succeeding crop. Some rmers prefer it even for fallows, because the greater certainty of getting a good and of peas when planted is this way.

When peas are planted with corn, they not seem to interfere, to any great ex-nt, with the growth of the corn crop; ecause the latter is well matured before e peas reach their stage of most rapid owth, provided they are not planted be-re the corn approaches the time of tas-lling.

GATHERING.—When the pods are ripe, enough of them to provide as much ed as is wanted, they are picked off by nd; and when sufficiently dry, are thresh-d out with flails or sticks, or are run rough a threshing machine. If the great- part of the crop is intended for manure, should be plowed down as soon as the athering is finished. The seeds are be-eved to have a higher fertilizing value an the vines, if they come to maturity; ut by this time the vines have lost part of eir value. The question as to the proper me for plowing down resolves itself into is form: "When will the seeds and nes together, generate the greatest amount ammonia in the soil?"

Chemistry would reply,—"When near- all the seeds have become *firm* in the ods, but not dry." At this time the most rward pods will be dry, but the vines will ill retain much of their greenness. Con-quently, the *seed portion* of the crop will ow contain nearly its maximum quantity ammoniferous matter, while the *vine rtion* will not yet have lost much of what longed to it. This is the *theory* which ience would present to the inquirer, inde-endent of experiment, and based only upon e well-known character and composition bean and pea crops generally, at the fferent stages of their growth. The *ex-riments* of the most successful pea-growers of the South confirm these simple deductions of science.

If the vines are to be used as forage, they may be cut off close to the ground with sharp hoes, or still better with short stout scythes, and cured like clover hay. The curing is a somewhat difficult process. Mr. Ruffin remarks, that "at maturity of growth they should be pulled up, if planted in clusters (or perhaps cut by the scythe, if broadcast?), and put up in tall and slender shocks, supported by a small stake set in the ground, to remain till cured enough to stack, or to be put away in a house." *Clover* may be cured in the same way.

Mr. Edmonston, of North Carolina, says: "As an article of forage or fodder, there is none superior to the peavine. Horses and cattle will eat it with avidity, and in preference to any other kind of fodder. The difficulty of saving these vines has constituted the chief objection to their use. The writer believes that they can easily be saved, by cutting them off close to the ground with sharp hoes, in the month of September; and then, having first provided forks and poles, plant the former in the ground in a straight line, and so place the poles upon the forks, that a common-sized man can clasp his hands over the poles [*i. e.*, they must be about 6 feet above the ground]. Place rails, with one end resting upon the pole, about 6 or 8 inches apart, after the manner of a top-stack or fodder-house, as it is called, leaving both ends open, and upon these rails throw the vines, until they are about one foot deep; throw over all some straw or grass, and a good supply of the best fodder for milch cows, or any other kind of stock, will be obtained."

The Black-eye, and other early varieties of this pea, grow well in the valley counties of Virginia south of Augusta, at least well enough to give a good fallow; and it is probable that they could soon be acclimated still farther north, at least until a sufficient growth could be attained to make them well worthy of attention as a fallow crop. They grow well on both the clay and sandy soils of the south-western part of the valley; and in cases where soils are too poor to produce clover, the pea may be cultivated and turned down, until the soil is rendered sufficiently fertile for the improvement to be continued with clover. Another valuable purpose might be served by attention to this crop. There are cases in which farmers fail to get a stand of clover; sometimes this occurs repeatedly for several years, until the land suffers seriously for want of a fallow crop. When such failures occur (and they are not unfrequent), a pea crop might be sown, and the land fallowed the next season. The Southern Pea could thus be made a valuable auxiliary to clover in enriching our lighter soils, and in rendering our stiff clays more mellow, as well as more fertile.

The WHEAT DRILL may be used in planting peas. The quantity of seed can thus be regulated with accuracy; and in cases where the drills are thought to be too close, every alternate tube may be closed up, and the drills will then be double the width of those of wheat.

From the American Farmer.

Sixty-Four Bushels of Wheat to the Acre.

The following from a gentleman whose name will be, to all who have any acquaintance with him, a sufficient guaranty of the care and accuracy with which his statement is sustained, will be read with interest by every wheat grower, both for the extraordinary facts it contains, and the details of cultivation and the comments of an experienced wheat grower in the best and most highly cultivated wheat growing county of the State—we mean Talbot county, Md.:

MR. EDITOR:—In the December of the American Farmer your remarks (induced by your Carroll county correspondent) resrespecting products of forty bushels of wheat to the acre, refer to the agricultural labors of my deceased father, the late Col. N. Goldsborough; and as an extraordinary crop of wheat was produced last year at Otwell, his late residence, the land upon which it grew being, as to fertility, as he left it, (no domestic or foreign manure of any kind having been immediately applied,) it appears to me that it is not only due to the promotion of agricultural knowledge, but peculiarly proper under all of the circumstances, that I should report the crop, with a sketch of the system which conduced to its production.

The field upon which it grew had, like the other portions of the farm, been subjected to the three field rotation of corn, wheat, and clover, for a great number of years. The farm, however, was divided into eight fields, so that the land could be grazed to advantage, there being three clover fields in each of two years of the rotation, and two in the other years. The number of animals grazed was very large, about one hundred acres of clover usually maintaining in the summer until sometime in the last of July or early in August, when the stubbles were also grazed—say fifteen horses, fifty to sixty cattle, one hundred to one hundred and twenty-five sheep and lambs, and one hundred and twenty-five to one hundred and fifty hogs and pigs—making three hundred to three hundred and fifty, of all ages and kinds.

It had been the practice for years on his, as on many other cultivated farms in his county, to dress the entire corn cultivation with some improving material.—My father used unrotted farm-yard manure, marsh mud, woods mould, Indian oyster shell deposit, marl, or lime variously applied. He never used the marl or lime extensively, but obtained almost all of the calcareous manure which he applied, from the oyster shell banks, and this he at one time applied very heavily upon land not shelled by the aborigines.

The field under consideration was, in its due course, manured and planted in corn in 1856, and in the fall the corn was cut off at the roots, and the ground was flushed flat in lands or beds seventy feet wide, harrowed, rolled, drilled in wheat without guano, and set in clover in the following spring. The crop reaped from it in 1857 (a bad wheat year,) was about twenty bushels per acre. I mention this to show the capability of the soil under such circumstances.

In the spring of 1858, the clover was filled with that terrible pest, "Pigeon weed," or "Red root," which now fatally chokes out wheat on many fine farms in this county, and I attempted to prevent it from seeding by stocking the field heavily about the last of April, with horses, sheep and hogs, but the season being very genial for grass, the weed was left untouched and therefore, to prevent its seed from ripening, I put in a large force of plows in the latter part of May, and broke the field about six inches deep, into lands seventy feet wide.

As a portion of the field was left unbroken with a view to a change in the subdivisions of the farm, stock continued to trample over the plowed surface until after harvest, and as the plowing was at so early a period, it was of course necessary to harrow and to roll it a great many times, (I do not know how often, as I do not reside on the farm, and no journal was kept,) to keep the grass and seeds under. It was *not plowed a second time*, and when it was drilled, there was nothing like a clod to be seen on the surface, and there was only close earth enough, and in the condition of powder, to allow the drill to cover the wheat effectually, the earth beneath the wheat having become very firmly packed by the action of rain, the trampling of stock, and the effect of implements, in the four months that intervened between the plowing and drilling.

It was drilled with an old Pierson drill nine inches wide between the tubes, on the 5th, 6th and 7th of October, the wheat being deposited about one inch below the surface of the soil in the bottom of the drill furrows.

The seed wheat drilled was thirty bushels which I purchased of Col. R. France, of Baltimore, at his then residence in this county—the variety being the beautiful smooth headed white wheat, obtained in this county a few weeks ago, from Mr. Johnson, of North Carolina.

Two bushels were drilled on one acre, and the remaining twenty-eight bushels were drilled at the rate of one bushel and sixty-one hundredths of a bushel per acre, at which rates the thirty bushels extended over eighteen acres and four-tenths of an acre.

The growth was enormous—maximum I suppose—being so dense that two persons, eight or ten feet apart in it, were invisible to each other, and the tallest specimens were six feet four inches in height, but it was generally about five feet six inches in height.

Just before harvest I laid off, by stepping, two lots designed to contain five acres or more each, to enter for premium. The wheat from each lot was carefully kept separate from all other wheat, and after it was threshed and fanned by the thresher, (a Wemple thresher and cleaner,) it was put in separate garners, I estimated the yield by taking the length, breadth and depth of the wheat, and reducing the cubic feet to bushels; but by some error of calculation I now cannot account for, I supposed the yield did not exceed thirty-three or thirty-four bushels per acre, because, as I then suppose, of injury by army worms, and, therefore, I did not put it in competition for premium. I did not ascertain the actual yield, nor had I any adequate idea of it, until about the first of December, when I made a final shipment of the entire crop of the farm.

The whole of the wheat from those lots was reserved for seed, and all of it except seven bushels was cleaned and used as such by myself and others. The product of the eighteen and four-tenth acres, excepting the raking, headings and screenings was kept in separate garners from the other wheat raised on the farm.

A few days ago, I carefully measured the whole of the ground drilled with the said thirty bushels, and the two portions intended to be entered for premium, and found the latter to contain, respectively, four and sixty-seven hundredth acres and four and forty-three hundredth acres, making, together, (they are adjoining,) nine and one-tenth acres, and the former eighteen and four-tenth acres. The following is a statement of the yield:

The 18 4-10 *acres yield.*

Bushels.		Bushels of 60 lbs.
300	Prime wheat weighing 63 lbs......	315.00
495	Do. prepared for seed, weighing 63½ lbs..............................	523.67
795	Prime wheat weighing...............	838.87
24	Raked wheat weighing 62 lbs......	24.80
64	Screenings and headings weighing 56 lbs..............................	59.73
883		923.40

883 divided by 18 4 10 gives 48 bushels (measures) per acre, 923.40 divided by 18 4-10 gives 50 10·100 bushels of 60 lbs. per acre.

The 9 1-10 *acres yieided.*

495	Prepared, used for seed, weighing 63½ lbs..............................	523.87
7	Prime, weighing 63 lbs...............	7.35
502	Prime weighing............................	531.22
12	Raked wheat weighing 62 lbs.....	12.40
46½	Screenings and headings, weighing 56 lbs..............................	43.40
560½		587.02

560½ divided by 9 1-10 gives 61 6-10 bushels (measure) per acre. 587.02 divided by 9 1-10 gives 64½ bushels of 60 lbs. per acre.

In the above statements, the two first items of each are known to be correct, but those for raked wheat and for screenings and headings, were ascertained by proportion, except a portion of the screenings produced by the nine and one tenth acres which were separated by the revolving screen in preparing the seed wheat for my use,and were kept separate from the others. They are, however, in all probability, less than the true products, because more than half of the acres in wheat on the farm were corn ground, and as that wheat was not so heavy as the fallow, and not lodged or tangled, and was but very partially attacked by army worm, it did nôt yield as much raked wheat per acre, or as large a proportion of screenings as the fallow wheat yielded—and the extra fanning given to the four hundred and ninety-five bushels of seed wheat removed from it an extra proportion of screenings.

Of the eighteen and four-tenth acres, nearly an acre, extending along the river bank, contains such an excess of shells that it will not produce wheat of maximum growth, and of this at least one-fourth of an acre was almost entirely destroyed by the repeated depredations of a flock of geese, which after harvest also tore up a shock of four or five bushels so badly that it was thrown into the general bulk of raked wheat.

During my absence from the county, the overseer, thinking that it was a paramount object with me to plow the field before the Pigeon weed ripened its seed,plowed about half of the eighteen and four-tenth acres when thoroughly wet from excessive rains, and the wheat on all of that portion was greatly inferior to the other, (take heed, wet plowers.) This wet plowing, the injury from geese, and the natural inferiority of the very shelly portion above named, caused the difference in the average yield of the whole, and that of the nine and one-tenth acres.

The army worm ravaged the whole of this field, devouring first the grass, then the blades of the wheat, and finally doing more or less direct injury to the grain.

I send you herewith a few heads upon which they operated.

Observe that several of the lower bars of grains have been entirely consumed and that the grains at the upper and lower ends of the heads, where they clipped off the points of the chaff, although perfect in form, are of very diminished size as compassed with those of the middle portion.

To avoid the sun, which appears to b very obnoxious to them, they particularl prey upon the smaller stalks which do nc attain to the general height of the cro cutting the heads entirely off from a ma jority of such wheat, and for the same rea son they almost entirely destroy the grai in all lodged wheat. From the above yo may form some idea of the injury they t do a crop of wheat.

For want of requisite shade, as I suppos they do not appear in wheat of light moderate growth, and for some reason which I have no idea, they only attack suc fields as are in the vicinity of our salt-wat creeks and rivers. They totally destroy a young artificial grasses in wheatfields whic they attack, which is probably as seriou an evil as they inflict, and of late years ou very rank wheat is very liable to be attacl ed by them.

The field of which the above named 1 4-10 acres of Johnson wheat is a part, con tains about 55 acres, and the portion whic was not occupied by that wheat (say 3 acres) was drilled with the old Blue Ste White. Viewing all of the circumstance neither variety had any appreciable advan tage that I can preceive, and the grow over the whole field was as uniform as wa probably ever seen upon an equal exten of ground.

Many persons, and among them thr very intelligent laboring men (white mc who assisted in harvesting the crop, thoug that lots of five acres could be laid off the Blue Stem that would yield more tha similar portions of the Johnson, and yet t third of the field in the Johnson yielded a most as much as did the remaining tw thirds in Blue Stem.

I can only attribute this astonishing di ference to the loss in the Blue Stem fro the large admixture of inferior varietie (that rarely if ever make other than dar and pinched grain,) which that wheat no contains. How much, therefore, does t success of a wheat crop depend upon t variety and its purity—and what an exam ple does this case present of the fallaciou ness of occular estimates of crops; yet is from such estimates that the most of ou decisions are formed respecting the valu of fertilizers, and the relative value of di ferent fertilizers, modes of culture and oth important questions affecting our busines

But I am glad to think that there

now some prospect of the establishment under the General Government, and in colleges and societies, of such endowed associations of scientific and practical intelligence as will conduct, direct and adequately encourage such experiments as will bring our agriculture towards the condition of an axact science, in the practice of which farmers will, with due confidence, and success, employ active capital. That immense benefits will result from such a condition of things, to the agricultural, and extend from that to every other interest, is too apparent to deserve grave discussion.

M. T. GOLDSBOROUGH.
Ellenboro', near Easton, Md., Feb. 1, '60

A Fool Cannot be a Farmer.

There is no profession among men, J. T. Buckingham very sensibly says, that illustrates more clearly the beneficial effects of varied intellectual culture, and scientific knowledge and research, than that of the farmer.

We once heard a venerable clergyman playfully remark, that when he was a boy "his folks thought he did not know enough to be a farmer so they sent him to college." Without presuming to intimate that there may or may not be a good many occupants of the learned professions, so called, who do not know enough to be farmers, we have no hesitation in affirming our belief that the best college education can find ample room for the employment of all its culture and attainments on the farm. The farmer who despises learning, and the young man who disparages farming as being an unintellectual pursuit, are both alike fools, and do not know enough to pass judgment on either. We hope and believe a better sentiment is growing in the community, and that it will not be many years before agriculture will secure the co-operation and advantage of academical or collegiate education.

LIEBIG states, in his "letters on Modern Agriculture," that no Chinese farmer sows a seed before it has been soaked in liquid manure diluted with water, and has begun to germinate; and that experience has taught him that this operation tends not only to promote the more rapid and vigorous growth and development of the plant, but also to protect the seed from the ravages of worms and insects.

EDITORIAL.

RALEIGH, APRIL, 1860.

☞ Subscribers receiving the Planter with a *cross mark* opposite their address, are thereby notified that the No. thus marked closes the time for which they have paid, and unless renewed, the paper will be sent no longer. We earnestly request all who find the cross mark on this No. to promptly forward the money for the Planter another year, and if possible, send another name (or a club) along with it.

The cash in advance plan is now adopted by all the papers of the country, and we believe our subscribers will like it better than the credit system; hence, we have adopted it, and must rigidly adhere to it. No one will therefore feel agrieved when he finds his Planter discontinued, if he neglects to send on money to renew. *All* will be treated alike. We trust, however, all will like us so well, that each will send on his renewal as soon as he sees the *cross mark.*

The Economy of Agriculture.

While yet the spring is young, while earth unbounds
Her frozen bosom to the western winds;
While mountain snows dissolve against the sun,
And streams, yet now, from precipices run:
Ev'n on this early dawning of the year,
Produce the plough, and yoke the sturdy steer,
And goad him till he groans beneath his toil,
Till the bright share is buried in the soil.

VIRGIL.

We have considered agriculture generally, alluded to its rights, pleasures and profits, discussed it in its present and political state, and now invite your attention to a few reflections on the importance, advantage and necessity of economy in all its multifarious departments. We cannot do full justice to a subject, in a short editorial, presenting matter sufficient for a treatise. We shall only attempt then, to put our readers upon the right track, erect sign posts at every fork thereof, with plain inscriptions thereon directing the way.—Economy does not teach a denial of the comforts and necessaries of life, too often mistaken for the means of producing the ends they obstruct; and that parsimony which inflicts this punishment is sure to receive a just retribution of disappointment and loss. Farmers who deny themselves and families the comforts of good and warm houses bedding and clothing, to acquire possession of the immortal dollar, injure the health, strength, vigor of mind and body of themselves and families' without which, the end in view, the acquisition of wealth, can never be accomplished The slaves, horses, and stock of every description should be well fed, sheltered and cared for, to make farming profitable and avoid the loss resulting from a different treatment. A farmer should use the best and most approved agricultural implements, and instead of investing all his monied capital in bank and State stocks should lend a large portion of it to his land, which will certainly declare a larger annual dividend than any other investment he may have made. A miserly system of agriculture, such as stinting his slaves, working poor half fed horses and worn out untensils, may keep a farmer out of jail, but will never lodge him in a fine house surrounded with all the luxuries of life.—Profits in agriculture are always in proportion to the improvement of the soil and a judicious cultivation of it. A sound judgment in the expenditures for this purpose. contains the great secret in the acquisition of wealth and happiness. Here the question of what is economy in agriculture? presents itself to every intelligent farmer We answer liberality. The more we give in the improvement and cultivation of our land, the more it will return us. Manuuring and culture is the fountain from which flows all our profits; good treatment to our slaves and working animals is the source of their profit. The work well done by a strong well fed team, pays better than sorry work of a lean, half fed team, after deducting the additional expense of feeding the first, and saves half the labor of the driver in following the other.

Liberality in all the necessary appendages of a well conducted farm adds health strength and comfort to the master and his slaves, preserves the lives of his stock, and causes them to grow and thrive on less food, and secures the crops from damage Liberality in the purchase of improved utensils saves labor in doing work well, and expeditiously. The time was when farmers cut their wheat and oats with reap hooks, now the operation would subject them to a confinement in the lunatic asylum. Farmers who have not the liberality to avail themselves of the benefits of labor saving machines, open a hole in their pockets, through which many of their hard earned shillings will pass and be lost to them and their heirs forever. Another item in the economy o agriculture is good management. It consists in preparing work for good and bad weather, in working on the farm in good and under the shelter in bad weather. In this arrangement all work is done in suitable weather, at the proper time and place No loss of time and labor is felt by th farmer who manages in this way. How many departures from this important rul do you witness in your daily observations? We have seen the plow running when th plowman had to wade in water, thus injuring the land and endangering the healt of the workman. We have seen reaper in the field when we knew that the grai would be destroyed by rain; thus, labo intended to save has frequently destroye the crops of the farm. There is mucl restless impatience manifested in gettin ready to plant the crops in time, and whe the time arrives, ready or not, the seed ar sown to the great detriment of their vegetation and subsequent growth. There i no economy in this, but an evident killin of time in doing the same work twice ove It is not only attended with a loss of tim out injury to the land, to the team and a useless wear and tear of implements and tools. Many farmers are in the habit of resorting to shifts and short cuts to save present time, by doing their work imperfectly, which invariably ends in the loss of future time, until at length the time thus lost by jobbing, makes its appearance over every farm subjected to these jack-leg operations, in the form of dilapidated houses, rotten fences, decaying orchards and barren soil, demonstrating that true economy consists in doing every kind of work in the best manner.

Good fences are creditable witnesses of industry, but many farmers keep up too much fencing, in having so many cross fences, separating the different fields on shifts to afford opportunities of grazing their stock—an injurious practice. A nice calculation will show that at least 10 per centum of a farmer's time and labor is bestowed in keeping up the fencing; too much to be abstracted from the other duties of the farm. Fencing at this rate would cost thirty-six days in a year, or five years in fifty. Would it not be better and cheaper to introduce a system of live fencing at once?

We have invited your attention to a few items on agricultural duty, in the discharge of which there is ample room for the display of economy; leaving you to pursue the subject beyond the limits of this editorial, *ad libitum*. It is a subject which should occupy the attention of all practical farmers, worthy of the consideration of the economist, and affording an opportunity to men of talents and experience of making themselves pre-eminently useful. We cannot conclude without suggesting another important item of economy for the benefit of our subscribers. It is the great secret in agriculture, for the publication of which we expect to be rewarded by the planters of North Carolina in running up our subscription list to the tune of five thousand or more. The laborer is worthy of his hire, send in your names and encourage us in our efforts, and we will publish some other discovery, probably the philosopher's stone. Do not be impatient, we are about to reveal the secret. Let those who have been pursuing the two, adopt the three shift system; those who have followed the three adopt the four; those who have adhered to the four try the five, and those who now work by the last adopt the six field system, and my word for it, those who follow this advice will acknowledge the corn. Are we asked the advantage of this change in the rotation now observed? It is too obvious to require interrogation. The labor required to cultivate one half of the farm will not be necessary to cultivate one third that required to cultivate one third cannot be employed advantageously in the cultivation of one fourth, and so on to the end of the chapter. What then shall be done with this extra force? Employ it in making and applying manure to your exhausted soil. In a short time one third of your farm will produce more than one half, the fourth more than the third, the fifth more than the fourth, and the sixth more than the fifth. The profit of making greater crops on less land is visible to a blind man. The same crop from the fourth of the farm may produce a profit, and yet a loss from the third, and so on throughout the proposed change. If 150 acres of poor land, the third of your arable farm, produce 150 barrels corn, and the expenses of cultivation amount to a barrel an acre, there is no profit, but if 112½ acres, the fourth of the farm, by the application of manure can be made to produce 150 barrels, there will be a profit of 38 barrels. This principle applies equally to every change in the rotation proposed, an equal crop by cultivating less land and the employment of less force. The error of employing labor to wear out and exhaust rather than to improve and fertilize land, however agregeous, prevails in this and other States to some extent. This practice, so glaringly absurd and not within the scope, as you might suppose, of human weakness to adopt, must be corrected. We do not mean to charge that any man is so stupid as to design to empoverish instead of to improve his land by his system of cultivation; but we mean to say that such is the effect. That system of cultivation which diminishes the fertility of the land, is obviously a natural evil, from which ruin and depopulation must ensue. This system prevails, it must be corrected, and it can only be done by the mode suggested, the employment of part of your force in the improvement instead of the cultivation of your land. It is equally at war with self-interest. Do not suffer your desire to realize compound instead of simple interest in your investments, effect the sterility of your land—for then you will receive no interest at all; be patient, improve your land by tilling less and manuring more, then the profits will be realized. If a constant and unremitted application of labor to the impoverishment instead of the improvement of land prevailed everywhere, in every country, starvation would be the result; if in our own only, which is almost the case, other countries must afford an asylum for our growing population, if in the State, emigration points out the remedy. The same process of cultivation elsewhere will in the end exhaust this miserable remedy, which has already sorely afflicted the State, and after a long struggle for the best birth in a land of poverty, made so by improvident management, the great discovery will be made, that an effort in each and every one to better his own condition, by the improvement of his land in his own State, his own country, is the only way to procure a plenty for himself, prosperity to the country and the happiness of its inhabitants.

But the disposition to hoard, to make a fortune in a few years, emboldens the avaricious to repeat the question, what shall we do with our surplus labor when we have more than enough to cultivate one half, one-third, one-fourth, one-fifth or one-sixth of our land? We repeat, apply it to the improvement of your worn out, wearing out, poor land. Labor was never intended to destroy, but to create. The effects of labor are the same in every department of mechanical skill as in agriculture; it requires more to improve, to build and to invent, than to destroy, impair and ruin; will any one therefore conclude that labor is necessary or designed to pull down and destroy houses? Where is the difference between suffering your dwellings and necessary out houses on your farm to tumble down for the want of occasional repairs, and killing your land, destroying the means of making them comfortable? If an abundance of labor was productive of a land-killing system of agriculture, and its scarcity resulted in the improvement, fertility and consequent productiveness of land, Holland would be a wilderness and North Carolina a garden. The great recommendation in favor of the rotation here suggested consists in the saving of labor, in reducing the number of acres for cultivation, to be applied to the improvement of the farm. A proper knowledge of the management of a farm will soon discover ample employment for the surplus labor, rendered available by reducing the quantity of land for cultivation. The making of manure, sowing clover on all the land that will produce it, sowing and plowing in green crops, draining, &c., will afford employment to all the labor that can be spared from the cultivation of the farm.

If these remarks have not satisfied our readers, and removed their apprehensions out the employment of the surplus labor luded to, let them divert the application labor-impoverishing to improving their nd; try the experiment, and they will then scover that the labor employed in the nprovement will be more profitable than at in the cultivation of the land.

J. M. J.

Live Stock.

The opinion that keeping a large stock, ıd enclosing to improve land by excluding ock are rival and incompatible systems, as prevailed, now prevails, and we fear ill continue to prevail to the great injury ıd detriment of both, in this and other gricultural communities. This error not ıly combats but retards the system upon hich the regeneration and improvement our land mainly depends. It will be dmitted by every farmer and planter of telligence, that keeping a stock sufficient- large to consume all the grass, hay, &c., roduced by the arable and meadow rounds of the farm, and not the enclosing ystem for the improvement of the farm ıd the consequent support of the stock, as prevailed in this and other Southern tates, particularly Virginia, to the injury nd loss of all who have tried it. In eastern irginia, and in some parts of this State, ıe consequences of keeping a stock, the ıpport of which renders it necessary to raze the arable lands, besides feeding away portion of the food made, render it impossible to raise a sufficiency of working eam for use. This destruction of the fer- lity of land by grazing without deriving ny adequate profit from it, now makes it ecesary to apply a portion of the agricul- ıral profits, scanty as they are, to supply ıe deficiency of a still more wretched sys- em of cultivating and grazing. The old gy system of cultivating and grazing nds has resulted in their exhaustion and terility. Let young America then teach he leason, that by cropping and grazing hem less, manuring and enclosing, more read and meat can be raised. Away with our nonsense, says the old fogy, this is all ook, scientific farming, I'll have none of . Let him die in the poor house. Rich and is as necessary to raise stock as for naking bread; it follows, therefore, that a ystem of grazing which impoverishes land, will as soon reduce the size of the stock, as a system of culture having the same effect will the quantity of the crops. But the old fogy says, young America recommends the system of enclosing to recover the fertility of our land, and this foolishness will reduce our stock. Charge this to his ignorance, his determination to do as his daddy did before him, regardless of consequences. Stock require rich land as much so as bread stuffs, without it we can have neither, unless we depopulate the country to provide food for stock. We have never found a good system of grazing co-existing with the miserable system of agriculture; some entertain the opinion that both systems cannot prevail at the same time, that one must be sacrificed for the other. This is a great mistake. We hold that a good system of one involves a good system of the other, in other words profitable farming depends in a great measure upon a good stock, and a good stock cannot be raised and supported without a good culture, so there is a total dependence of one upon the other. Arable lands should never be grazed; meadows and standing pastures should be prepared and kept for grazing. When both of these systems are incompatible, that is when both cannot be pursued advantageously, owing to the character and quality of the soil and the location of the farm, the question, *which* shall be adopted and the other abandoned, naturally presents itself, and the good sense of the farmer must determine. A dry, light sandy soil is not valuable for grazing purposes; on the other hand a cold, moist, wet clay soil suits grazing better than culture. These natural disadvantages arising from the location of the farm and the character of the soil, unfavorable to the one or other system, are not so insurmountable as to exclude either entirely.—The farmer owning the light, dry, sandy and poor soil, must adopt the enclosing and manuring system for fertilizing his land, and thereby enable him to raise crops. The offal of wheat will support a small stock; and the farmer owning the cold, moist, wet and stiff clay soil, must first drain his land, then enclose and manure it to make breadstuffs for the family.

As a farm under the enclosing, manuring system increases in fertility and production, so it is enabled to increase its stock, and the surplus crop appropriated to this purpose may be more valuable than the same farm could be under the grazing system exclusively. This increased fertility enables the farmer to reduce the quantity of his arable land, and appropriate more to grazing purposes, a very different mode of providing for stock, from that of grazing poor land. The least scintilla of intellect will decide the question here discussed: whether the farmer, under all the circumstances enumerated, had better cultivate and graze, or follow the one or the other exclusively.

Climate as well as the location of the farm and the character of its soil, has much to do with this business. In western North Carolina, the raising of stock and the cultivation of culmiferous crops will pay better than a more general system of forming, including the whole family of succulent and legnminous crops. J. M. J.

[TO BE CONTINUED.]

Our Associate Editor.

We kept open our pages to the latest moment, expecting to receive his quota of matter from our excellent Associate Editor. We presume he has been so busily engaged in attending Agricultural meetings, th he has not had time to prepare anything for this number. We learn from the Franklin Observer, that he spoke at Franklin, Macon county, on the 13th, which speech, the Observer says, "abounded with practical good sense, and facts worthy the serious consideration of our farmers."

We notice, that on the same day, an Agricultural Society was formed at Franklin, called the Macon County Agricultural Society," under flattering circumstances.

We notice also a Communication from a Jackson County Farmer, urging the formation of an Agricultural Society in that County, and soliciting our Associate Editor, Mr. Woodfin, to "honor the meeting with his presence."

This is the way to awaken an interest, and a laudable emulation to excel in the noble science of Agriculture. Nothing has so much contributed to its advancement in the East, as these Agricultural Societies.

We hope our worthy Associate will attend all such meetings he can, and contribute of his valuable fund of information t the edification of his Western Count Farmers. And we hope, also, that *the* will contribute of their means to suppo the North Carolina Planter. But we hope furthermore, that our Associate will u neglect us in the future.

State Fair—1860.

We give in this No. of the Planter sixteen pages more matter than usual—containing the List of Premiums offered competitors at our next State Fair. It will b seen that some of them are very liberal, an ought to induce very many competitors t enter the lists.

The Executive Committee are makin arrangements for several improvements o the Fair Grounds. A Pomological Hall to be erected, so as to give Floral Hall e clusively to the Ladies; the Judges and M sicians Stands are to be placed in the ce tre of the Circle or Track, and various a rangements are to be made, that will, w think, be pronounced decided improv ments. Let every body read the List Premiums, and determine to have som thing on exhibition.

New Fertilizer.

We call attention to the Advertiseme of Messrs. Mycoeth & Perkins, to be fou on the cover of this No. of the Planter.- They have deposited with us some of the Chemical Guano, with a request that w would give it away to such Farmers would take portions of it and test it alon side of the Peruvian Guano and promise write out for the North Carolina Plant the result of their experiments. Perso wishing to try some on these terms, w make application to the Editor of the Nor Carolina Planter, Raleigh.

For the N. C. Planter.

Editor N. C. Planter—Dear Sir:—By order of the Sampson County Agricultural Society, I forward the within to you, with the request that it be published.

Respectfully,
J. W. EAGER, Sec'y.

An Essay on Lime.

An essay that shall exhaust this subject in all its forms and combinations, would amount to a small volume. Hence, I shall not even mention those preparations and combinations that are not immediately interesting to the farmer. That such preparations and combinations may be the better understood and properly estimated, I have thought it best to give below their symbolic arrangement, and then proceed to examine each one in detail, so far only as it is connected with agriculture. I will however premise, that until the days of Sir Humphry Davy, lime with the oxydes of several other substances was considered an elementary body, and is so treated of in older works on chemistry. By Davy it was discovered to be a compound, viz: an oxyde of Calcium, as potassa was also found to be an oxyde of potassium, &c.

These important discoveries resulted from a previous discovery of the compound blow pipe, by our lamented countryman, Dr. Robt. Hare, of Pa.

SYMBOLICAL ARRANGEMENT.

Ca x 0=Oxyde of Calcium—Lime.
Ca x 0 x Ho=Hydrate of Lime—slaked.
Ca x 0 x Ho x C 02=Carbonate of Lime.
Ca x 0 x Ho x S 03=Sulphate of Lime--plaster Paris.
Ca x 0 x Ho x P 05=Phosphate of Lime--bone earth.

Pure quick lime is almost always procured from the carbonate by the agency of heat which expels the carbonic acid, and leaves the lime in the state which we find it in, as it comes to us in barrels, or if exposed to air or moisture in the hydrated state or that of slaked lime. In the form of quick lime it has a very strong affinity for water, and on exposure to that substance either in the atmosphere or in the common state, it rapidly swells up and enlarges while it evolves much heat. Quick and hydrated lime are the same when used for agricultural purposes, and is what Ruffin calls an ameliorator to the soil and not *per se* a manure or even a fertilizer. He says in his work on Calcarious manures, that all the soil from the heads of the smaller streams to the Atlantic contains an acid which lime has the power of neutralizing, and thereby improving. It may be true that all of our land contains such an acid, and if so, it could not be questioned that lime would benefit such land provided it be an acid for which lime has a strong affinity; he does not say what acid it is, but intimates that it may be gallic, tannic, oxalic, or what chemists now call humic acid.—That theory has grown to be quite a favorite with him, because perhaps it is a fact promulgated by him first to the world, but when an author doubts himself, he cannot blame others for doubting also.—The most valuable purpose for which lime has latterly been used, seems to be more in unison with truth than the above theory. Our low grounds or marshes are just what European writers call "peat bogs," and seem to be accumulations of leaves, trash, herbage; and such things in a green state contain a vast amount of original, tannic or gallic acids or which contain a sugar convertable into acetic by fermentation. Lime mixed with muck from these accumulations, I have no doubt acts in the way mentioned above, by neutralizing the acid, and hastening the decomposition of the vegetable remains, and rendering them capable of being taken up by vegetation. It can be of little consequence which is used in composting, the quick or slaked lime, as if applied in the caustic state, it only absorbs water to become slaked. Some of it also absorbs carbonic acid from the air and earth and becomes carbonate.

Mr. Holden, in his address before the Cumberland County Society, makes use of the expression that "lime with stable manure constitutes the very best fertilizer." Such an expression may lead others to mix the two together, which would be a ruinous practice, for the ammonia in the stable manure is combined with uric or hippuric acid, and as soon as either lime, potash or soda comes in contact with it, if moisture be present, the stronger alkalies unite with the acid and set the ammonia free; in such a case the whole would be no more valuable than lime mixed with any other trash. A never failing rule is never to mix lime or ashes with any animal manure, such as guano, manure from the hen roost, night soil, &c., which are the most valuable of all others when properly treated. The mistake is often made of applying lime to the privy deposite to expel the disagreeable odor, which it will certainly do in the way I have explained above, but at the expense of the ammonia; it would be far better to clean them out regularly and compost the cleanings with vegetable remains, in which case the most valuable manure (guano not excepted) is elaborated or manufactured.

Professor Dana says in his "Muck Manual," that lime in the three states above mentioned, exists in sufficient quantity in all the soil in the United States, which he has seen or examined, to produce three thousand crops, and that by the addition of vegetable matter the lime will manifest itself. Such a statement at first sight seems to strike us as almost ridiculous, but on reflection we are surprised to see how much truth there appears to be in it. In the first place the high standing of the author who makes the affirmative, should have due weight in making up our opinions, but reason, the greatest gift from God to man, also comes in to support the statement. In the first place we must consider that all bark and leaves of trees are rich in lime, that the cones or burrs on the pine tree are even more rich than leaves, and that there is no part of the habitable globe but what abound in shell, fish, snail, or some kind of land or water animal which cannot even subsist without lime. The shells of all eggs and composition of all bone depend upon it. Secondly, that very small quantities of this material enter into vegetable life when compared with other things that make the sum total. Thirdly, no results of a favorable character have been obtained by the application of pure lime to the land in this country. Even the experiments of Ruffin were not made on lime, but marl, which is a very different thing as I shall endeavor to show by and by. Prof. Emmons, if not directly in support of Dana, is indirectly so. He does not speak of lime in his estimation of land, but dwells upon potash, and emphatically tells all persons who are in search of land, to purchase such lands as are rich in potash, producing trees, such as oak, ash, elm, gums, maple, tulip or poplar, &c., and adds that such lands never deceive their owner, when properly drained.

I do not bring this testimony forward to prove that lime is useless or inert, but it is certainly wrong to praise, too highly, any substance that has done so little when has been used, or to mislead the public as t well authenticated facts. I know that it a requisition of the land owners in Gre Britain that so much lime shall be applie to the land by the tenant every ninetee years; but why? because in that countr everything that possibly can be taken o of the land is taken off every year, neithe leaves stalks nor other remains are all owe to decay on the soil and mix with it an further, lime in all that country seldo exceeds six or nine cents per bushel, an when it does is very seldom used. Ther fore, if in the greatest agricultural countr known to the world lime is not profitabl when it exceeds nine cents per bushel how can it be made profitable here at cost of at least thirty cents per bushe which is as low as we can ever obtain it?

CARBONATE OF LIME.—By this ter we mean lime-stone, as it is found in extensive beds, whether mixed with it o not, and will include every variety, fro the common rotton lime-stone, as it i called, to the beautiful and rich Itali marble, such for instance, as Powers i his transcendent imagination, only a fe years ago looked upon and could see ther in the beautiful, the chaste, and lovel form of the Greek slave.

I have said before, that out of the ca bonate of lime, quick lime is made throug the agency of heat, and a piece of this su stance heated to redness and then a strea of oxygen and hydrogen gasses such as ar used in the compound blow-pipe throw upon it, makes a light so intense that th eye cannot endure it, and is known by th name of Drummond light, simply becaus Drummond recommended the use of suc lights on public buildings, &c. A ju appreciation of its illustrious author shoul always demand a change to Hare light, i honor of Dr. Robt. Hare, whose name have had occasion to mention before.—Limestone, marl and marble dust are th main combinations of this material use as dressing for land. Limestone an marble dust are too insoluble to merit a tention, as also is chalk. The marl whic is found in this country is not by an means pure carbonate of lime, but is mixed mass of that substance, animal remains and excrementitious matters, bon or phosphate of lime, &c., which ma one of the most valuable fertilizers know

us. It is true that in our estimation of
arl we generally give an opinion based
pon the relative amount of lime that the
ecimen contains, because the crumbled
ass is so intermixed with other things
at we can generally say with correctness
it contains much carbonate of lime that
ere are animal remains in proportion.—
the most valuable beds of marl are
und coprotites, which are dark colored
dies an inch or two long, tapering at
ch end from three-fourths of an inch to
e inch in thickness, and shaped like two
nes whose bases are placed together;
ese are excrements of animals, and per-
ps equal to guano. The bones of the
aller animals as well as the larger that
rish in such places, decay much sooner
an the shell, and contribute to the forma-
on of pure phosphate of lime, which in
y opinion is the most valuable of all
bstances for our soil in this country.—
arl is divided into several divisions ac-
rding to the time of their deposite, and
ey are generally valuable according to
e name. The most recent deposites are
lled past-pliocene; such marl contains the
mains of animals which still live, almost
tirely. Pliocene which contains less of
e living species. Miocene which con-
ins still less or a minority of living spe-
es, and Eocene which contains none of
e species now living. To the latter be-
ngs the green sand deposites of N. Jer-
y, which consists almost entirely of
psum or plaster of Paris. To the other
ree most of the marls of this country
long, clam shells, oyster and periwinkle
ells compose the majority of the earthy
aterial and animal remains and bone—
uch of the rest mixed with clay and sand
various proportions. Effects produced
om such a mixture should never be attri-
ted to the lime alone which they contain.

SULPHATE OF LIME.—This is nothing
t the plaster of Paris, and when pure
d crystalized it is called selenite and, the
ite compact variety is employed in stat-
ry under the name of alabaster, out of
ich all the toys that are hawked through
e streets by Hungarians are made.—
hen reduced to powder by heat this is a
ry valuable top dressing, for wheat land
d clover will not grow without it exist
the soil. A soil which has become clo-
sick will again produce if plaster be
plied in abundance. Its introduction as a top dressing on wheat land is due to Dr. Franklin. M. J. Faison, Esq., of this county, told me that cotton seed rolled in plaster would on his land produce plants several inches taller, would bear better and remain green much longer than without it. According to my own observation it is better for peas and melons than for anything I have tried.

PHOSPHATE OF LIME.—Much that should have been said under this head has already been said under marl and other things.—This is bone dust or bone earth, and is found to be what remains after boiling bones in a solution of potassa. This I think is very justly a celebrated manure that merits all that has been said about it; it increases for the first crop and for how many succeeding ones I am unable to say; I have tried it myself, and the land where it was applied three years ago seems to be permanently improved. The only questions that are in the way are as to its purity, when brought to us, and the cost. If pure it will pay finely at a considerable cost; the bone shavings sold with it are equally valuable, as in addition they contain ammonia. In justice to this subject I should perhaps mention the urate of lime as it is found in the guano of commerce. This is generally, as I have said before, formed at the expense of ammonia, but under peculiar circumstances it may not be. The circumstances are these: it is known that birds, reptiles and fishes have no distinct excretory duct for voiding their urine, and consequently the feces and urine are passad together. This mixture is what it is said guano is formed out of, and in guano the urate of lime, together with the urate of ammonia is found, which is very valuable in consequence of the urea which results from its ultimate decomposition.

With these remarks I very respectfully conclude, and submit this essay.

H. A. BIZZELL.

Report of Committee on Essays and Experiments:

Your Committee have with pleasure read the production of Dr. Henry A. Bizzell—an Essay upon Lime. The Author deserves the thanks of the Society; we regret it is the only one submitted to our examination; it is well entitled to a premium, and with the consent of the Author recommend its publication. Respectfully submitted,

P. MURPHY, *Ch'n.*

For the N. C. Planter.

The Common Potato, (Solanum Tuberosum.)—Its Origin and Dispersion.

The common potato, as it is appropriately called in the Patent Office Reports, is a native of the elevated table lands of Peru. The first definite account of it is by P. de Cieca in 1553. He says the natives cultivate besides *maize* a tubercular root they call *Papas*. Some confusion has arisen from confounding it with *Batatas* or sweet potato, which belongs to a different natural order, (*Convolvulaceae*.) It is also noticed by Gomara in 1554, and by Cardan in 1557. The expedition sent out by Sir Walter Raleigh in 1586 found *maize*, and the potato, in use by the Indians on the coast of North Carolina, showing very conclusively that they had commercial intercourse with the Spaniards. It is usually stated that some of this returning expedition carried it to England, thence it was taken to Ireland, and thereby acquired, after profitable culture, its Irish part of the name, commonly but wrongfully applied.

In 1588 P. de Sivry sent *two tubers* to Clusius, Professor of Botany at Leyden; these he carefully cultivated, and gave to the world the first accurate drawing and description of the potato in 1599. Gerard Bauhin also gave description of it, with some information respecting its culture in Italy in 1596. Thus this fine esculent was gradually dispersed over Europe, and has furnished to its teeming population a valuable substitute for many coarser and inferior articles of food used before its introduction.

The common potato is, strictly speaking, a *mountainous tropical plant*. It flourishes best in a cold, moist, and uniform atmosphere; and to promote its luxuriant growth and development in lower climates, it is necessary to imitate, as nearly as possible, these natural requirements. This may be effected to a considerable extent in the Southern States, by covering with leaves, straw, &c., to create a cool, moist temperature, so essential for its rapid and continuous growth. Throughout the Northern States, and along the entire course of the Alleghanies, the potato finds a congenial soil and climate, and large quantities are raised for exportation. Its cultivation has become almost general throughout the United States. No family can do well without it. It is regarded everywhere as one of the indispensable articles of food. Nothing better for health than mealy nutritious potato!

About ten years ago experiments were made under the auspices of the New York Agricultural Society, which proved tha "the potato loves a cool, uniform and long season." Frequently the reverse, "a ho unsteady and short season" prevails in th North, and then disease is sure to follow. It was also ascertained that "mildew so fa from being the originating cause of the disease was but the result and proof o pre-existing causes, arising from the action of the weather on the constitutional weakness of the plant." The mountains o North Carolina are peculiarly adapted t the successful growth of the potato, an the production of fine, sound tubers there the climate is cool, moist, sufficiently airy and uniform, and it is, no doubt owing to these *natural requisites* that th potato is less affected here with diseas than in the Northern States. But it is no intended to enter into a full discussion o the "potato disease," upon which volume have been written. Various causes hav been assigned for it, as *ravages of insects deficiency of soil, fungus or mould, &c.* but *no one* of these is perfectly satisfactory it is only *proof* of some latent and pre existing cause. The only theory whic we have seen based upon sound, rationa views, is on assigning the *potato disease* t *exhausted energy*, resulting from certain lo cal and climatic causes, whereby the plan is disabled from withstanding the conse quent exposure to which it is subjected.—Cool, uniform weather, moisture and a goo soil are the natural requirements for th prosperous development of this *mountain ous tropical* plant. It is owing to thes causes that the potato flourishes well i Ireland and even in Liberia. In the Uni ted States, as previously stated, its cultur is extensive, and its use almost indispen sable.

For the present we desist, but may re sume our desultory remarks on a futur occasion. C. L. H.

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Lime soils are injurious to sheep, as b absorbing the oil in the wool they rende the fibre harsh and brittle.

Horticulture.

S. W. WESTBROOK, EDITOR.

For the N. C. Planter.

Having in a previous number given among other things a list of such varieties of Pear as will, if the cultivation be given them, yield fruit, "beautiful to the eye and delicious to the taste," I now proceed to give what I regard as that "proper cultivation," or at least such a cultivation as will accomplish most excellent results.

Presuming then that thrifty two year old standard Pear trees have been purchased from a *reliable* source, (for I would'nt have all the trees in the world if they came from men of whose character I knew nothing,) and that the same have been taken up with such care as to preserve a good quantity of roots, I suggest the following mode of procedure, warranting a return abundantly commensurate with the trouble and outlay: On the receipt of the package containing the trees, open the same, and if in good condition cover the roots well with mellow earth, until you are ready to plant. If the trees are frozen or withered, bury them, "root and branch," and let them remain that way for at least a week. Now, having selected a *well drained* piece of land, dig holes from 18 to 25 feet apart, (I think 18 enough) of a diameter of four and a depth of two feet. Fill these holes with rich compost of surface soil, a gallon of ashes and a pint of super-phosphate of lime, and plant the trees with care, having them no deeper than they grew in the Nursery. The ends of the roots should always be smoothly cut off, so as to allow a more ready formation of fibrous roots, and in planting, the earth should be *sifted gently* with the hand among the roots, care being taken to have them separated and spread out as horizontally as possible. The tree should then be pruned, (it may be done before planting) so as to make what is called a "pyramidal" form, the only form of training adapted to a warm climate. I mean by this that the tree should be made to branch very near the ground, and the limbs so cut, or rather shortened (not chopped off at the body) that the tree has the shape of a pyramid. This is the more natural shape, and most trees, if left to themselves and given distance enough, would adopt it, but the common and detestable practice is to trim them up like stack-poles, to a height that horses can walk under, thus ruining their shape and *retarding for years their fruitfulness.* If trees are thus trained they will need no stalks to hold them up nor mulches to keep the ground moist after the first year, but will bear themselves up well, shade the ground and their bodies from the burning sun, and yield fruit long before the patience is severely tried.

Your trees now being properly planted and pruned, will give you a gratifying growth if you will keep the weeds and grass from growing among them, *and your horses and cattle in some other enclosure.* The next season, if the growth has been luxuriant (if not the season following) in the early winter or late fall, dig a ditch around the tree about three to four feet from the body, eighteen inches deep and wide, and fill it up with a compost such as is recommended for the planting. It will do no harm, but good, if you throw in the ditch, (or *trench* if you prefer, I like the word better) some broken bones, old shoes or bits of leather, a few rusty nails or pieces of iron, potato or pea vines, and the like. The object of these last articles (as of the first) is to give an abundant supply of lime, potash, phosphates, soda, magnesia and iron. Besides, the digging out of *poor* and filling in of *good* earth gives a larger quantity of deep soil to feed upon; and if repeated every alternate year, will, at last amount to *trenching* the land in which your orchard is growing.

The mode of planting, pruning, and after management recommended above, will give you vigorous, healthy and comely trees, and cause them to bear fruit of excellent size and flavor at a comparatively early age. I believe fully that when our people give this fruit the attention it really deserves, and stocks on which to graft become abundant as those of the apple and peach, that our Nurserymen will be able, *by frequent transplanting of the seedlings,* to furnish trees which will gladden the eye and palate with their delicious fruits, as soon as the peach, that ruddy cheeked favorite of our sunny clime.

When Pear trees on the Quince stock

(or *Dwarf* trees) are planted, the *garden* should be selected as the site. They must be planted so that the point of union between the Pear and Quince shall be about one inch below the surface of the earth, and trained so that the limbs shall start as near the ground as possible. The soil should be made rich and cultivated with neatness. Melons, cucumbers, beets, or other vegetables may be planted amongst them. The distance should be about ten feet, and if the soil is not compact (or too sandy) it would be of service to haul in stiff clay. Pear trees on pear stock are, I think, better on warm pervious and moderately rich soil, whilst those on the Quince do better where the soil is very rich and rather close in texture. Dwarfs will do, however, on any *good* land kept clean by the hoe. Stimulating manures, such as guano, fresh stable manure, and the like, should be avoided, especially with the standards, as the tendency is to produce rank and tender growth, and consequent blight, as well as to retard the formation of fruit buds. Fertilizers which cause a vigorous, firm and stocky growth are much to be preferred, and if such are used liberally, the trees not allowed to fruit too heavily when young, and good cultivation given, the Dwarf Pear tree will produce fruit for years, of the finest size and most excellent quality.

In 1848 a respectable nurseryman who had fruit trees for sale in the city of Raleigh, and among them a few Pear trees, endeavored to get the writer to purchase some. I bought a few apple trees, but told the old man that I never yet had seen a Pear fit for a white man to eat. He modestly replied that he thought he had seen some that were *pretty good.* I was ignorant then of the melting texture and sugar juiciness of the Seckel, Belle Lucrative, Burgamot, Beurre, Doyenne. My knowledge of the Pear was confined to such delectable sorts as the " pound," and a little goard shaped fellow composed of one-tenth sugar, five-tenths alum and the balance sand or something else of a similar *feel* to the teeth. How often have I since regretted that the old man hadn't had some of *my sort of modesty*, for then I should have had pear trees twelve years old, producing fine crops of buttery and melting fruit. I have some fair trees now, and a number which give promise of gladdening *my palate* and regaling the *olfactories* of my friends before a great while. *Then* I was just as too many are *now.* I have come out of the darkness, and feeling rejoiced that in this matter at least " ignorance is not bliss," I have turned *missionary, and propose to enlighten the heathens in North Carolina*—with all due modesty and respect, be it said.

Our Southern climate is most admirably adapted to the production of this delicious fruit, and I trust not many years will elapse before it will become a part of the daily *food* of our people. We eat too much meat and too little fruit. A mixture would cost less, taste better, and give more health, and with all these advantages we ought not to hesitate to plant trees, and cultivate them with skill and liberality.—By so doing and remembering that all good things are worth the trifling cost of a little money, time and labor, we should soon rejoice in rich harvests of the Ott, the Bartlett, the Sekel, the Beurre d' Anjou, the Beurre Easter, and other choice varieties, good enough for the most capricious taste. SUNNY SIDE.

Grape Growing and Wine Making in California.

[CONTINUED FROM OUR LAST.]

CRUSHER.

When the picked grapes are brought to the press-house, they ought to be crushed immediately, and not left standing in tubs over night, or the next day.

The crusher is a simple machine. There are three cast iron cylinders; two of them of even size roll against each other; the third one is on top of the two lower ones, and is fluted for the purpose to take hold of the bunch to jam it down to the two lower ones; these latter have very small projections, like a wafle-iron, so as to crush the grapes, but not the grape seed, which would be injurious to the taste of the wine. I have one of the above-named crushers, made to crush apples for cider, and it answers admirably. Two men can crush with it five thousand pounds of grapes easy in a day.

The crusher is placed above a common screw press, in which the grapes from the crusher will fall, with stems, juice, and seed;

he juice running slowly off by itself, and is arried in buckets to the cellar, and filled n the barrels.

PRESS.

This instrument may be made simple nd almost to every man's own idea or aste; it is not material, as long as it presses out the juice of the grapes. The top lanks are placed on the substance and he screws drawn to squeeze out the juice om said crushed grapes.

WHITE WINE.

It was mentioned before that during the rushing of the grapes and falling of the ame in the press, some juice will run off ithout pressing, this juice will make the rst quality of White Wine, and is generaly barreled by itself; when the press beomes full, and is pressed slightly, the juice hus gained will make the second quality. ow, the balance remaining can be used distil brandy, or make an inferior quality f Red Wine. For the latter purpose, put he whole mass, with stems and all, in a rge fermentating tub, and when nearly ll, fill the balance with pure water and t it ferment.

The first and the second run of the juice, stated, was put in separate barrels, which re filled within six inches from the top, e bung-hole covered with vine leaves or clean cloth, and left for fermentation.

RED WINE.

If persons wish to make first quality of ed Wine, the process is as follows:

Crush your grapes as above stated; take e whole mass, together with its juice, d put it in the fermenting tub; cover id tub with a clean cloth; let it ferment warm weather, six days; if cool, twelve fourteen days, and take every day, a utch-like stick and press the stems, which ill come to the top of your tub, down to the fluid mass; when, after the above ven time, you put your ear to the tub d hear no fermentation, the wine is ready be drawn; but to be perfectly sure, take gimlet and bore a hole in the tub about om six to ten inches from the bottom acording to the size of the vessel, and if the ine comes out clear you can draw it off to the barrels; but in your fermenting b you must have, previous to putting in the ass, nailed a grate or kind of sieve over the faucet hole to prevent the grape seeds from coming into the faucet. Now, your Red Wine barrels have to receive the same care, as stated above of the White Wine, in your cellar, with the exception that the Red Wine barrels must be filled full, as there is no danger of a strong fermentation as of the White Wine. Of course every person will understand that to make Red Wine you must have blue grapes; but White Wine can be made as well from blue as white grapes.

SECOND QUALITY OF RED WINE.

It was stated above that after the White Wine from the blue grapes was pressed, and then the mass of stems and husks was put in a fermenting tub filled with water and left for fermentation, the fluid drawn off thus would give only a poor wine; but if said fluid is pressed over stems and husks in a second tub, and left over them for twenty-four hours, then drawn off and poured over stems and husks in a third tub, and this way continued up to five or six tubs, the fluid drawn off from the last tub will make an excellent wine the next July or August.

When the fluid from tub No. 1 is drawn off to pour it over the stem and husk mash in the tub No. 2, No. 1 must be filled with warm water, which is left twenty-four hours on it, and then the same process is applied as above described, said fluid passing through all the tubs, and this to be continued by pouring newly warmed water over the masses in said tub until every particle of spirituous matter is extracted from them—this so extracted fluid is then used to distil brandy from.

BARRELS.

Nothing in making will require more attention and watchfulness than the keeping of the barrels clean. The planter may have the finest locality, the best soil, and good ripe grapes, etc., and still his wine will have a bad taste, become sour, turbid and unpalatable, if he does not take the best care of his barrels. He is often compelled to purchase all sorts of barrels, and may think by putting hot water in the barrel and washing it out several times it will be fit for use, but this is a great mistake: then such barrels are mostly mouldy and sour, neither the first nor the latter will be removed thus; but only if the head of the barrel is taken out and the barrel itself thoroughly burnt out with shavings or straw so that its inner parts charred from one-sixteenth to one-eighth part of an inch all over, then washed out first with hot and last with cold water several times until the same runs off clear, the barrel will become sweet.

The above process with barrels which the planter has purchased, or such of his own that become sour or mouldy by neglecting the precaution I will give-forthwith?—When your wine barrel gets empty, take said barrel immediately and wash it out with hot water, then several times with cold water, and burn some sulphur in it in the following manner:

1st. Put the spigot air tight in its hole.

2nd. Have the bung covered, with a clean linen rag also in readiness lying next the bunghole.

3rd. Make a small hole in your sulphur-coated linen strip.

4th. Insert into this hole a piece of wire one or two feet long.

5th. Light said sulphur strip and push it quickly through the bunghole into the barrel and bung it up. As long as an oxygenous air is in the barrel the sulphur will burn, and fill with its fumes the barrel, when extinguished take said wire out and bung up the barrel air tight, and keep in a dry, sheltered place, ready for use.

A barrel prepared in this way will never sour or become mouldy; and when you intend to fill the same with wine, you have only to wash it out first with hot and then with coldwater. Said sulphur strips can be got in some stores, but each planter may prepare them for himself by melting the sulphur and dipping them into the molten mass.

PRESS HOUSE.

This building should be invariably in front of the cellar, as otherwise it would be inconvenient to transport the wine, and juice pressed out, from the fermenting tubs and the wine press to the barrels in the cellar. In large vineyards the press house ought to be two stories high, so as to have the barrels in the cellar filled by means of hose (to save wine and labor) at once, without any spilling, etc. In said press house there should be sufficient room for the press, the crusher, the fermenting tubs, all the empty barrels, and other articles necessary for manufacturing the wine.

CELLAR.

If the planter has a mountain convenient, which consists of soft stone or clay, the best mode is to make the cellar in the mountain, the length, of course, depends upon the size of the vineyard, the width upon the quality of the rock or clay; if strong, you may venture twenty feet, but if not safe to that width, make it thirteen feet, with a gothic arch. This kind of a cellar is very cheap, much more so than a farm barn—is perfectly secure against fire, and makes excellent wines. Then, a good cellar, with an even temperature during the whole year, is a material requisite for producing good wine. If there should be no mountain close and handy, the next best way is, when rocks can be had, to dig in the ground six or eight feet in the clear, and draw them gradually to a gothic arch; when closed cover these rocks several feet with ground dug out of the place, and it will give you an excellent cellar, strong and of nearly an even temperature. Almost any man who can lay a stone fence can make such a cellar. But if no rocks can be had in the neighborhood, build a thick wall with adobes, two feet thick; make it seven feet high; put heavy red wood beams on the top of the wall; cover it with redwood planks, and throw one foot of mud upon them; then cover the whole with a single roof. A slight ventilation is beneficial for the preservation of barrels, and a pure air to prevent mould.

The cellar and press house should be kept very clean; no stuff which may rot or get sour should be tolerated in them or near by, as wine quickly attracts all bad smells and acidity.

The Seckel Pear.

This delicious and popular variety of the pear was first known, in this country at Philadelphia, Pa., and is supposed to have been brought from Germany. It obtained its name from a gentleman by the name of Seckel, into whose hands the ground passed upon which the original tree stands. This tree, from which thousands have multiplied, is said to be standing yet though nearly a century has elapsed since it was first known. It is still vigorous and ruitful, and specimens of this fruit are nnually exhibited at the Fairs of the Pennsylvania Horticultural Society.

Prof. Downing pronounces this pear he richest and most exquisitely flavored variety known. He adds, "in its highly oncentrated, spicy and honied flavor, it is not surpassed by any European variety. When we add to this, that the tree is the hardiest and healthiest of all pear trees, orming a fine, compact, symmetrical head nd bearing regular and abundant crops in lusters at the ends of the branches, it is asy to see that we consider no garden is omplete without it. Indeed, we think it ndispensable in the smallest garden. The tout, short-jointed, olive-colored wood distinguishes this variety, as well as the peuliar redish-brown color of the fruit. The oil should receive a top-dressing of manure, frequently, when the size of the pear s an object."

For the Ladies.

FLORICULTURE.

Greenhouse.—Repot all plants as they dvance in growth, and harden off all plants intended for bedding out purposes. Bouvardia Hiantha is an admirable plant or this purpose, also Santanas, and Verbenas of all shades of color, scarlet and rose olored Geraniums, Calceolarias, Helitropes, Cupheas also. The Petuna should e placed in a prominent position.

Flower Garden.—All beds intended o be filled with flowers the coming summer hould be well forked or spaded up, the round made rich. Borders intended for he same purpose should receive similar reatment. Care must be observed, that he taller growing plants are placed t the back of the border, the smallest ear the edge, so they may all be seen o advantage. Supposing all the beds n readiness before commencing to plant, e careful the colors of the flowers grown n each bed be so arranged that it will harmonize with and heighten the color of the ne near it. Much taste is required in his arrangement, as the beauty of the hole place depends on the judicious arrangement of the colors. It is much best to have several beds of small size filled with flowers, at unequal distances on the lawn, than a mixed up border of plants, which is never really gay, but always one or two flowers expanded. Such beds or borders are a great deal of trouble and no satisfaction. We are certainly in favor of maping: we mean by this one bed, one color.

Dahlias may be safely planted out the last week in the present month. All danger of frost will, we think, be over. We trust none of our readers will again plant those old fashioned green eyed monsters. There are some splendid colors and flowers of excellence, which if we could induce our amateurs once to cultivate, would supplant all those ancient varieties that have only a dozen petals and a green eye to recommend them. There is now a great variety of this plant—hundreds of good flowers—selfs—that is one color. Fancys, dark tipped with white, or light tipped with dark; laced, two or more colors mixed in the same flower. The Dahlia is a very necessary plant for planting at the back of flower borders.

We enumerate here a dozen of the best Verbenas, with their colors, trusting it may be useful to some of our readers in bedding out the present spring: Berenice; white. Blue Defiance; blue. Giant of the Battle; dark crimson scarlet. Athleta; rose and violet. Empress of France; shaded pink, large. Huntingdon; plum color, large white eye. Miss Trotter; scarlet, with yellow eye. Prince Edward; purple, with white eye. Kurtry's Defiance; blueish white, crimson eye, best light variety. Uncle Tom; nearly black. Pre-eminent; bright ruby. Sir Joseph Paxton; purple, very five.

Lawns.—The grass should be cut, if possible, every fifteen days, where a soft even turf is desired; the walks kept free from weeds and rolled frequently. Look well to the drainage, so the water can pass off freely after a rain. Where necessary, surface tiles should be laid at the sides of the walks to conduct the water off, thereby preventing washes or gullies in the walks. It is very essential that grass be top-dressed every fall, the more so where trees of native growth are retained, as the constant removal of the leaves each fall impoverishes the soil; yet if they are allowed to remain all winter, wherever they lay at all thick the grass will die.

EVERGREENS.—The present month will be the best time to plant Evergreens of all kinds. See they do not suffer for water, as it is to this cause the inexperienced lose so many of their pets, when newly planted.

W. H. HAMILTON,
Landscape Gardener,
Raleigh, N. C.

Culinary Department.

CELERY.—Transplant the strongest plants; place them three inches apart each way, keep them moist, the ground frequently stirred to induce rapid growth. The ground must be rich or it is no use planting.

IRISH POTATOES.—Work these well and often, as a great deal depends on this operation in the early stages of their growth, as to how soon they will be fit for table.

PIE PLANT.—Where this has been forced into growth earlier in the season, the plants may be returned to the place where taken from, or new plantations made with them should not be forced again.

ENGLISH PEAS.—Earth up and place sticks beside all those needing support.—Marrowfats will be best sown now.

CABBAGE.—Where space is an object, 2 feet will be space enough, by planting so the spaces of the second row are opposite the plants of the first—should be worked over frequently.

TOMATO.—Plant 4 feet each way as all danger of frost is over. Large smooth is the best variety.

PEPPER.—Plant two feet each way.—Bell or Bull Nose is the best variety for pickle; the seeds taken out and filled with cabbage.

ASPARAGUS.—Care must be observed when cutting the crown or top. If the root is not injured it is best to use a knife for the purpose. Do not cut more than twice off young beds; it is injurious to take much from them when young; they will not produce heavily afterward.

STRAWBERRIES.—Keep these well supplied with water, if you wish to enjoy the fruit. Never let them suffer in this particular. Lay clean straw between the rows and under the leaves and fruit to keep the fruit clean.

W. H. HAMILTON,
Raleigh, N. C.

THE ARTICLE.—If the question were put in every house in the land: what article is that which you desire the most which will be of most use to you, most shorten labor and promote domestic comfort, would not the universal answer be—a good Washing Machine? And here it is! "The Cataract Washing Machine," Sullivan & Hyatt, Proprietors, (advertised in the cover of this paper. *And* now, the best advice we can offer is that every farmer's wife, planter, hotel keeper, steamboat stewardess, and all others in town and out of town, go to the nearest store and order one of these valuable household friends, and learn that the washing-day may come whenever it pleases and that you are always prepared for it.

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NORTH CAROLINA
State Agricultural Society.

THE SEVENTH
ANNUAL FAIR,

F THE SOCIETY, WILL BE HELD AT RAEEIGH, ON
TUESDAY, WEDNESDAY, THURSDAY
and FRIDAY,
October 17th, 18th and 19th, 1860.

OFFICERS OF THE SOCIETY.

R. WM. R. HOLT, of Davidson, President.
. A. CRUDUP, of Franklin, 1st Vice Pres't
. F. PATTERSON, of Caldwell, 2d do.
. R. BRIDGES, of Edgecombe, 3d do.
. B. WADSWORTH, of Craven, 4th do.
. F. HUTCHINS, of Raleigh, Treasurer.
OHN H. BRYAN, Jr., Secretary.

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ilson W. Whitaker, of Wake, Secretary.
m. R. Poole, of Wake.
harles L. Hinton, do.
. S. Tucker, do.
eedham Price, do.
m. R. Cox, do.
ames E. Williamson, of Caswell.
. W. B. Watson, of Johnston.
eter E. Smith, of Halifax.
rancis Fries, of Forsythe.
m. J. Hawkins, of Warren.

XPERIMENTS AND ESSAYS.

EXPERIMENTS.

For each of the two best experiments, or eries of experiments, on any of the follow- g subjects, a premium as follows.

1. How late, in reference to te rowth, the last tillage (by plow or culti- ator,) should be given to corn for tne est product; and whether the said last llage should be shallow or deep. $5

2 *Tobacco*.—Culture, cost and prof of cultivating, and comparative effects n production, from different distances f planting, modes of priming, topping, c., comprising at least three different xperiments. 20

3. Cultivation and comparative feed- g value of rye. 5

4. Planting, culture, pruning and sup- orting in open vineyards, different va eties of grape vines for the table, or ma- ing of wine. 20

ESSAYS.

For each of the best five, on any of the following subjects, a premium as follows:

1. On improving and enriching poor land—whether naturally poor, or naturally rich, or good, and subsequently exhausted by severe cropping. $15
2. On draining, 10
3. On rotation of crops, 5
4. On the accumulation, preparation and application of stock yard and stable manure. 10
5. On the formation and constituents of composts and the application of them. 10
6. On the "green sand" or gypseous earth of lower North Carolina as manure, and the facts and causes of effect or non-effect. 5
7. On the properties and value of the Southern Pea, (or "cornfield pea" of any variety,) and the culture thereof, whether for saving the pea ripened, or ploughing under the growth, green or dry, for manure, and as a preparation for wheat or other grain crops, and as food for swine and other stock, 5
8. On the comparative profit of planting and farming, and of the combined improvement of land being considered. 10

FIELD CROPS.

To be awarded by the Executive Committee, at a meeting to be held for that purpose in January, 1863.

Best crop of Wheat of not less than 20 acres nor less than 30 bushels per acre.	$50
Best crop of Wheat not less than 5 acres nor less than 40 bushels per acre,	40
Second best crop of Wheat, not less than five acres,	25
Best crop of Indian Corn, not less than 25 acres nor less than 50 bushels per per acre,	50
Best crop of Indian Corn, not less than 5 acres of reclaimed or improved land, to be shelled and weighed between the 10th of November and the 15th of December, not less than 100 bushels acre,	25
Best crep of Indian Corn, not less than 2 acres, nor less than 100 bushels per acre,	20
Best crop of Barley, not less than 1 acre nor less than 50 bushels per acre,	10
Best crop of Rye, not less than 10 acres nor less than 20 bushels per acre,	20

Best crop of Oats, not less than 10 acres nor less than 40 bushels of clean Oats per acre. Two average acres to be threshed,	20
Best crop of Buckwheat, not less than 2 acres nor less than 30 bushels per acre,	10
Best crop of Rice, not less than 25 acres nor less than 70 bushels per acre, (in the rough,)	25
Best crop of Rice, not less than 5 acres and not less than 85 bushels per acre, (in the rough,)	25
Best crop of Field Peas, not less than 5 acres, nor less than 25 bushels per acre,	20
Best crop of Peas on one acre, not less than 30 bushels per acre,	10
Best acre of Navy Beans, not less than 50 bushels,	20
Best crop of Ground Peas, not less than 1 acre, nor less than 75 bushels per acre,	10
Best crop of Ground Peas, not less than 20 acres, nor less than 50 bushels per acre,	10
Best crop of Cotton, on not less than 25 acres, nor less than 1400 lbs. per acre,	50
Best crop of Cotton on not less than 5 acres, nor less than 1600 lbs. per acre,	25
Best acre of Cotton, not less than 2000 lbs.,	25
Best crop of Timothy, Orchard Grass, Blue Grass, Feathered Grass, or Herds Grass Hay, raised on 10 acres, one bale, weighing not less than 250 lbs., as a sample,	25
Best 4 acres of Hay, of any kind, not less than 2½ tons to the acre,	15
Best crop of Sweet Potatoes, on not less than 1 acre, nor less than 300 bushels per acre,	15
Best crop of Irish Potatoes, not less than ½ acre, nor less than 300 bushels per acre,	15
Best crop of Turnips, not less than ½ acre, nor less than 500 bushels per acre,	15
Best crop of Turnips, not less than 2 acres,	15
Best crop of Beets, not less than ½ acre, nor less than 400 bushels per acre,	10
Best crop of Carrots, (with same conditions as for Beets,)	10
Best crop of Tobacco, combining quantity and quality, not less than 25,000 hills, samples of not less than 2 lbs. of 1st, 2d and 3d qualities, to be furnished the Committee by the 1st Monday in July, 1860,	50
Best 16,000 hills Tobacco, with same conditions,	25
Best crop of ½ acre of Flax, with same account as above,	15
Best crop of Broom Corn, not less than 1 acre, one bale, weighing not less than 150 lbs. sent as a sample,	15

Statement to be made by Competitors on Field Crops.

1. The land must be measured by some competent person, who shall make affidavit of the accuracy of the measurement, and the quality of the ground.

2. The applicant shall make affidavit, according to the forms annexed, to the quantity of grain raised on the ground, entered on the premium list, which affidavit must accompany the application for premiums, together with a sample of the grain or other product.

3. The principal object of the Society being to promote profitable cultivation, it does not offer premiums for crops produced by extravagant expenditure; therefore a detailed, certified account of the expense of cultivation, must be made; the expense of labor and manures stated and the kind of manure used.

4. The kind and condition of the soil; the quantity and kind of seed used; the time and mode of planting or sowing stated. Samples of grain and vegetables produced, to be exhibited at the State Fair, when practicable, and also to be sent to the Executive Committee, at Raleigh, prior to the meeting o the Committee in January, 1861.

5. The grain must either be weighed o measured in a legal half bushel; corn to b measured in the ear, and an average specimen of not less than four barrels of averag quality of ears shelled, cleaned, and weighe or measured, as above, after the 15th of November, and the number of bushels thus estimated, stated in the affidavit.

FORM OF AN AFFIDAVIT.

——— County, S. S.—A. B., being dul sworn, says he accurately measured the lan upon which C. D. raised a crop of —— th past season, and the quantity of the land i — acres and no more.

[Signed] A. B.

Sworn to before me, this — day of —, 186

——— County, S. S.—C. D., being dul sworn, says he raised a crop of —— the present season, upon the land measured by A B., and that the quantity of grain raise thereon was — bushels and no more, (o measured in a sealed half bushel as the cas may be,) and that the statements in regar to the manner of cultivation, &c., are co rect, to the best of my knowledge.

[Signed] C. D.

Sworn to before me, this — day of —, 185 .
———, Justice.

CLASS A.—LIVE STOCK.

NEEDHAM PRICE, Superintendant.

HORSES.

No. 1.—*Thoroughbreds.*

Best Stallion, 4 years old and over,	$30 00
2d do " " "	20 00
Best Stallion, 2 years and under 4,	15 00
2d do " " "	10 00
Best Brood Mare, 4 years and over,	20 00
Best Brood Mare, 4 years and over with foal by her side,	25 00
2d Best Brood Mare, 4 years and over, with foal by her side,	15 00
Best Filly, 2 and under 4 years,	10 00
2d do " " "	5 00

No. 2.—*Quick Draft and Saddle Horses.*

[In this class, individual excellence in form, action and disposition, will be regarded as chief points of merit, and all matched horses must be owned and used as such and not made for the occasion.]

Best Stallion, 4 years and over,	$30 00
2d do " " "	20 00
Best Stallion, 2 years and under 4,	15 00
2d do " " "	10 00
Best Stallion, 1 year and under 2,	10 00
3d do " " "	5 00
Best Brood Mare, 4 years and over,	20 00
2d do " " "	10 00
Best Brood Mare, 4 years and over, with foal by her side,	25 00
2d Best Brood Mare, 4 years and over, with foal by her side,	15 00
Best Filly, 2 years and under 4,	10 00
2d do " " "	5 00
Best Saddle Horse, Mare or Gelding,	15 00
2d do " " "	10 00
Best pair Matched Carriage Horses,	20 00
2d do " " "	10 00
Best pair Matched Carriage Horses, raised in the State,	25 00
2d Best pair Matched Carriage Horses, raised in the State,	15 00
Best Single Harness Horse,	15 00
2d do " "	10 00
Best Single Harness Horse, raised in the State,	15 00
2d Best Single Harness Horse, raised in the State,	10 00

No. 3.—*Heavy Draft Horses.*

Best Stallion, 4 years and over,	$20 00
2d do " " "	10 00
Best Stallion, 2 years and under 4,	10 00
2d do " " "	5 00
Best Stallion, 1 year and under 2,	5 00
2d do " " "	2 00
Best Brood Mare, 4 years and over, with foal by her side,	15 00
2d Best Brood Mare, 4 years and over, with foal by her side,	10 00
Best Filly, 2 years and under 4,	10 00
2d do " " "	5 00
Best pair of Heavy Draft Horses raised in the State,	10
2d Best pair of Heavy Draft Horses raised in the State,	5

No. 4.—*Jacks and Jennets.*

Best imported Jack, with approved certificates,	$25
Best Jack raised in the State,	20
2d do " " "	10
Best imported Jennet, with approved certificate,	15
Best Jennet raised in the State,	10
2d do " " "	5

No. 5.—*Mules.*

Best pair Mules, 3 years and over,	$20
2d do " " "	10
Best pair Mules, 3 years and over, raised in the State,	15
2d Best pair of Mules, 3 years and over raised in the State,	10
Best single Mule,	10
2d Best single Mule,	5
Best Mule Colt,	10

[No animal can take more than one premium.]

CLASS B.—LIVE STOCK.

CHARLES L. HINTON, Superintendant.

No. 6.—*Cattle.—North Devons.*

Best Bull, 4 years and over,	$25
2d do " "	15
Best Bull, 3 years and under 4,	20
2d do " " "	10
Best Bull, 2 years and under 3,	15
2d do " " "	10
Best Bull Calf, 1 year and under 2,	10
Best Bull Calf, under 1 year,	5
Best Cow, 3 years and over,	10
2d do " "	5
Best Heifer, 2 years and under 3,	10
Best Heifer, 1 year and under 2,	10
Best Heifer, under 1 year,	5

No. 7.—*Durhams.*

Best Bull, 4 years and under 4,	25
2d do " "	15
Best Bull, 3 years and under 4,	20
2d do " " "	10
Best Bull, 2 years and under 3,	15
2d do " " "	10
Best Bull Calf, 1 year and under 2,	10
Best Bull Calf, under 1 year,	5

Best Cow, 3 years and over,	10
2d do " "	5
Best Heifer, 1 year and under 3,	10
Best Heifer, 1 year and under 2,	10
Best Heifer, under 1 year,	5

No. 8.—*Herefords.*

The same Premiums as for Devons.

No. 9.—*Ayrshires.*

The same Premiums as for Devons.

No. 10.—*Holsteins.*

The same Premiums as for Devons

No. 11.—*Alderneys and Jerseys.*

The same Premiums as for Devons.

[It is to be understood that in all the foregoing classes, the animals must be of pure blood.]

No. 12.—*Grades.*

Best Bull, 4 years and over,	$25
2d do " "	15
Best Bull, 3 years and under 4,	20
2d do " " "	10
Best Bull, 2 years and under 3,	10
2d do " " "	5
Best Bull Calf, 1 year and under 2,	10
Best Bull Calf, under 1 year,	5
Best Cow, 3 years and over,	10
2d do " "	5
Best Heifer, 2 years and under 3,	10
Best Heifer, 1 year and under 2,	10
do Heifer, under 1 year,	5

No. 13.—*Natives*

Best Bull, 4 years and over,	25
2d do " " "	15
Best Bull, 3 years and under 4,	20
2d do " " "	10
Best Bull, 2 years and under 3,	10
2d do " " "	5
Best Bull Calf, 1 year and under 2,	10
do Bull Calf, under 1 year,	5
Best Cow, 3 years and over,	10
2d do " " "	5
Best Heifer, 2 years and under 3,	10
do Heifer, 1 year and under 2,	10
do Heifer, under one year,	5

No. 14.—*Imported Cattle.*

[When the word "Imported" is used, it is understood the animal must be brought from beyond the United States, with a well authenticated pedigree,]

Best Bull, 3 years and over,	25
2d do do do do	10
Best Cow, 3 years and under 4,	20
2d do do do do	10

No. 15.—*Milch Cows.*

Best Milch Cow, giving not less than 20 quarts a day,	15
2d Best Milch Cow, giving not less than 20 quarts a day,	10
Best Milch Cow, giving not less than 20 quarts a day, raised in the State,	15
2d Best Milch Cow, giving not less than 20 quarts a day, raised in the State,	10

No. 16.—*Working Oxen*

[A cart will be provided to test the working qualifications of the Oxen.]

Best yoke of Oxen,	$15
2d do do	5
Best single Ox,	5

No. 17.—*Fat Cattle.*

[Applicants for premiums for Fat Cattle must furnish statements of the manner of feeding.]

Best pair of Fat Steers,	$25
do Fat Steer,	15
do Fat Cow,	10

☞ Judges on Fat Cattle will give particular attention to the animals submitted to them for examination.

It is believed that all other things being equal, those are the best cattle that have the greatest weight in the smallest superficies.

The cattle to be judged as Fat Cattle, will all be weighed, and the Judges will take measures to get the superficies of each.

No. 18.—*Sheep.—Merinoes.*

Best Buck,	$15
do do	10
Best Pen of Ewes, not less than 3,	15
2d do do do do do	10
Best Pen of Lambs, not less than 2,	10
2d do do do do do	5

No. 19.—*Cotswolds.*

The same premiums as for Merinoes.

No. 20.—*Saxons.*

The same premiums as for Merinoes.

Fo. 21.—*South Downs.*

Best Buck,	$15
2d do	10
Best Pen of Ewes, not less than 2,	15
2d do do do do do	10
Best Pen of Lambs, not less than 2,	10
2d do do do do do	5

No. 22.—*Leicesters.*

The same premiums as for Merinoes.

No. 23.—*Natives or Grades.*

Best Buck,	$10
2d do	5
Best Pen of Ewes, not less than 2,	10

d do do do do do	5
est Pen of Lambs, not less than 2,	5
d do do do do do	3
est Pen of Fat Wethers, not less than 4,*	10

*Two of which may be slaughtered and hibited on Thursday of Fair week,—for hich best pair an additional premium of 0 will be allowed, and the exhibitor will be rmitted to dispose of the same after three clock on Thursday evening.

No. 25.—*Swine.—Large Breed*

[This Class includes Chester, Berkshire, ampshire, Graziers, Leicester, Bedford, or oburn.]

est Boar, over 2 years old,	$10
d do do do do	5
est Boar, over 1 year old and under 2,	5
d do do do do	6
est Sow, over 2 years old,	5
d do do do	3
est Breeding Sow, with not less than 6 pigs,	10
d Best Breeding Sow, with not less than 6 pigs,	5
est Lot of Pigs, (not less than 6) under 10 months old,	6
l Best Lot of Pigs, (not less than 6) under 10 months old,	3

No. 26.—*Small Breed.*

[This Class includes, Suffolk, Neapolitan, hinese, Essex, Guinea, Mocha, Snap-Drag-.]

est Boar, over 2 years old,	$10
d do do do	5
est Boar, over 1 year old and under 2,	5
d do do do	3
est Sow, ovor 2 years old,	5
d do do do	3
est Breeding Sow, with not less than 6 pigs,	10
l Best Breeding Sow, with not less than 6 pigs,	5
est Lot of Pigs, (not less than 6) under 10 months old,	6

No. 27.—*Grades.*

est Boar, over 2 years old,	$10
d do do do	5
est Boar, over 1 year old and under 2,	5
d do do do do do	3
est Sow, over 2 years old,	5
2d do do do	5
est Breeding Sow, with not less than 6 pigs,	10
l best Breeding Sow, with not less than 6 pigs,	5
est Lot of Pigs, (not less than six) under 10 months old,	6
l best Lot of Pigs, (not less than 6) under 10 months old,	3

No. 28.—*Natives.*

Best Boar, over 2 years old,	$10
2d do do do	5
Best Boar, over 1 year old and under 2,	5
2d do do do do do	3
Best Sow, over 2 years old,	5
2d do do do	3
Best Breeding Sow, with not less than 6 pigs,	10
2d best Breeding Sow, with not less than 6 pigs,	5
Best Lot of Pigs, (not less than 6) under 10 months old,	6
2d best Lot of Pigs, (not less than 6) under 10 months old,	5

No. 29.—*Poultry.*

Best trio of Buff or Red Shanghais,	$3
do do Gray or Bramah Pootras,	3
do do Dorkings,	3
do do Poland or Top Knots,	3
do do Black Spanish,	3
do do Hamburgs,	3
do do Seabright Bantams,	3
Best lot of Games,	3
do do Sumatra Games,	3
do do Wild Indian Games,	3
Best pair of Wild Turkeys,	3
do do Domestic Turkeys,	3
do do Wild Geese,	3
do do Bremen Geese,	3
do do Hong Kong Geese,	3
do do Common Geese,	3
do do Muscovey Ducks,	3
do do Rouen Ducks,	3
do do Aylesbury Ducks,	3
do do Common Ducks,	3
do do Pea Fowls,	3
Best trio of Guinea Fowls,	3
do do Capons,	3
Best Caponed Turkey,	3

CLASS C.—AGRICULTURE.

WM. R. POOLE, Superintendant.

No. 30.—*Agricultural Productions.*

Best variety of Wheat, 1 bushel as sample,		3
do do Corn for Bread,	do	3
do do Corn for Stock,	do	3
Best do Oats,	do	3
do do Rye,	do	3
do do Barley,	do	3
do do Rice,	do	3
do do Field Peas,	do	3
do do Beans,	do	3
do do Ground Peas,	do	3
do do Sweet Potatoes, a few cooked,	do	2
do do Cotton, 2 stalks as sample,		3
do do Grass Seeds, adapted to		

the South for Hay or Grazing,	3
Best and greatest variety of the above articles, raised on one farm,	10
Best Bale of Cotton, weighing not less than 400 lbs.,	20
Best specimen of Cotton, in seed, not less than 10 lbs.,	5
Best specimen of Virgin Dip Turpentine, 1 bbl.,	3 3
Best specimen of Rosin, 1 bbl.,	3
do do Hemp, prepared or dressed,	3
do do Flax, do	3
Best bbl. of Cider Vinegar,	3
do do Vinegar from Chinese Sugar Cane,	3
Best specimen of Linseed Oil, made in the State, 1 gallon,	3
Best specimen of Oil from any other article,	3
Best keg Manufactured Tobacco,	10
Best Smoking Tobacco,	2
Best Box Cigars,	3

No. 31.—*Salt Provisions.*

Best ½ bbl. Pickled or Mess Beef, sample cooked,	$5
Best ½ bbl. Pickled or Mess Pork,	5
Best ½ doz. Hams, regardless of age, one to be cooked as a sample,	10
Best ½ doz. Mutton or Venison Hams,	5
Best bbl. of Roe Herrings,	5
do do Cut do	5
do do Shad or Mullet,	5

[Exhibitors must state in writing, the mode of Pickling the Beef and Pork, and curing and preserving the Bacon.]

No. 32.—*Butter and Cheese.*

Best sample of Fresh Butter, not less than 10 lbs.,	$10
2d Best sample of Fresh Butter, not less than 10 lbs.,	5
Best Firkin Butter, not less than 80 lbs.,	10
2d Best Firkin Butter, not less than 80 lbs.,	5
Best specimen of Cheese made in the State,	5

[The process of making and preserving the butter and cheese, and its age, must be given in writing by the Exhibitor.]

Best Barrel Family Flour, made from 6 bushels of Wheat (allowing 60 lbs. to the bushel,	10
Best Barrel Family Flour, made from 5½ bushels of Wheat, (allowing 60 lbs. to the bushel,	10
Best bbl. Flour made from 5 bush. wheat, (allowing 60 lbs. to the bushel,)	10

The Flour must be exhibited in the name, and by the owner of the mills, &c.

Best Corn Meal, 2½ bushels,	
do Rye Flour, 1-2 barrel,	
do Buckwheat, 1-2 barrel,	
do Starch from Wheat, 3 lbs.,	
do Starch from Potatoes, 3 lbs.,	
do Starch from other substances, 3 lbs.,	
do Wheat Bread, 3 loaves,	
2d do do do	
do Soda Crackers,, 10 lbs., made in the State,	
do Butter Crackers, "	
do Water Crackers, "	
do Honey, 1-2 gallon, strained,	
do " 10 lbs., in the comb,	
do Syrup from Chinese Sugar Cane, 5 gallons,	1

[Judges will recommend to Executive Com mittee any article in this class, which the may deem worthy of special notice, and fo which a special premium has not been of fered.]

No. 34.—*Preserves, Pickles, &c.*

Best specimen of Preserved Peaches,	$
do do do Apples,	
do do do Plums,	
do do do Quinces,	
do do do Nectarines,	
do do do Apricots,	
do do do Pears,	
do do do Cherries.	
do do Green Pickles,	
do do Yellow Pickles,	
do do Sweet Pickles,	
do do Fruit Jellies,	
do do Tomato Catsup,	
do do Walnut Catsup,	
do do Brandy Peaches	
do do Cordials,	
Best half bushels of Dried Peaches,	
do do do Pears,	
do do do Apples,	
do do do Figs,	
Best 10 pounds of do Grapes,	
do do do Plums,	
do do do Cherries,	
do do do Whortleberries,	
do do do Strawberries,	
do do do Raspberries,	
do do do Blackberries,	

No. 35.—*Fruit in Cans.*

Best Peaches, in Cans,	
do Apricots, do	
do Nectarines, do	
do Grapes, do	
do Cherries, do	
do Gooseberries, do	
do Currants, do	
do Quinces, do	
do Tomatoes, do	

lo Strawberries, do	3
lo Raspberries, do	3
lo Green Corn, do	3

No. 36.—*Native Wines.*

est Dry Catawba,	5
d do do	2
est Sparkling Catawba,	5
est Sp'kling Wine from any other Grape,	5
d Best Wine from any other Grape,	2
est Wine from the Isabella Grape,	5
d do do do do	2
est Wine from the Scuppernong Grape,	5
d do do do do	2
est Wine from any other Grape,	5
d do do do do	2
est and greatest variety of Wines, not less than 2 bottles of each,	10
est Cider in bottles, not less than 1 doz.,	5
est Blackberry Wine, 2 bottles,	5

No. 37.—*Fruit adapted to the South.*

est and greatest variety of Apples,	10
lo do do Pears,	10
o do dd Peaches,	10
o do do Quinces,	5
lo do do Figs,	5
lo do do Grapes,	10
lo do do Cranberries,	2

o. 30.—*Fruit Trees adapted to the South.*

rgest and best variety of Apple Trees,	$10
do do do Pear do	10
do do do Peach do	10
do do do Cherry do	10
do do do Nectarine,	5
do do do Apricot do	5
do do do Plum do	5
do do Strawberry Vines,	2
do do Raspberry do	2
do do Gooseberry do	2

No. 39.—*Vegetables.*

est Celery, 6 stalks,	$2
lo Cauliflower, 6 heads,	2
lo Brocoli, do	2
lo Cabbage, do	2
lo Egg Plants, do	2
lo Squashes, do	2
lo Pumpkin, 2	2
lo Onions. 1 peck,	2
lo Beets for table, 6,	2
lo Sugar Beets, 6,	2
lo Parsnips, 6,	2
lo Carrots, 6,	2
lo Salsify,	2
lo Irish Potatoes, 1 bushel,	2
lo Sweet do do	2
lo Turnips, do	2

CLASS D.—MECHANICS.

PETER E. SMITH, SUPERINTENDANT.

No. 40.—*Plows.*

Best 3 horse Plow,	$6
do do do manuf'ct'd in the State,	6
do 2 horse Plow,	5
2d best do do	4
Best do do manuf'ct'd in the State,	5
2d best do do do do do	4
Best single horse Plow,	4
2d do do	3
Best do do manuf'ct'd in the State,	4
2d do do do do	3
Best subsoil Plow,	5
2d do do	4
Best do do manuf'ct'd in the State,	5
2d do do do do do	4
Best Double-Mouldboard Plow,	5
2d do do do	4
Best do manuf'ct'd in the State,	5
2d do do do do do	4
Best Wrought Turning Plow, manufactured in the State,	5
Best Potato Digger,	5

No. 41.—*Harrows, Planters and Sowers Rollers, Cultivators and Grain Drills.*

Best Harrow,	$5
2d do	2
Best Seed Planter for horse or hand power, for hills or drills,	5
2d best Seed Planter for horse or hand power for hills or drills,	5
Best Horse Corn Planter,	5
2d do do do	2
Best Hand Corn Planter,	6
2d do do do	2
Best Cotton Planter,	5
Best Planter for small seed,	5
do Broad Cast Sower,	2
2d do do do	[illegible]
Best Iron Roller, (smooth,)	[illegible]
do Cultivator for crushing clods, (serrated,)	5
Best Cultivator for general purposes,	5
2d do do do	2
Best Corn Cultivator,	5
2d do do	2
Best Wheat Drill,	15
do Cotton Scraper,	5
do Cotton Planter,	5

No. 42.—*Threshing Machines, Fanning Mills, Hay, Straw, Stalk and Vegetable Cutters.*

Best Threshing Machine,	$15
Best Fanning Mill,	10
2d do do	5
Best Hay, Stalk and Straw Cutter,	10
2d do do do do	5

Best do do manufact'd in the State,	10
2d do do do do	5
Best Vegetable Cutter for Stock,	5

No. 43.—*Corn Shellers and Cob Crushers*

Best Corn Sheller, horse power,	10
2d do do do do	5
Best do do hand power,	10
2d do do do	5
Best Corn & Cob Crusher, horse power,	10
2d do do do do do	5

CLASS E.—MECHANICS.

Dr. WM. J. HAWKINS, Superintendant.

No. 44.—*Reaping and Mowing Machines, Horse Powers, Stump Pullers.*

Best Reaping Machine,	$20
2d do do	10
Best Reaping Machine made in the State,	10
Best Mowing Machine,	20
2d do do	10
Best Sweep Horse Power,	20
2d do do	10
Best Railway Horse Power,	20
2d do do	10
Best Stump Puller,	10
2d do do	5

No. 45.—*Hay and Cotton Press and Implements.*

Best Portable Hay Press,	$10
2d do do	5
Best Cotton Press,	10
2d do do	5
Best Cotton Gin,	20
do Horse Rake,	5
2d do do	2
Best Farm or Road Scraper,	5
2d do do do	2
Best Cider Mill,	10
2d do do	5
Best Washing Machine,	5
2d do do	2
Best Lime, Guano and Plaster Spreader,	20
do Manure Spreader,	10
do Pump for Wells,	10
2d do do	5
Best Sugar Mill,	15
do Marl Elevator,	10
do Pair Mill Stones, made in the State,	25
do Model of Gearing for Water Mill,	20

No. 46.—*Carriages, Wagons, Carts, &c.*

Best two horse Pleasure Carriage,	$25
2d " " "	15
Best one horse Rockaway,	15
2d " "	10
Best one-horse Top Buggy,	15
2d " " "	10
Best one-horse Open Buggy,	15
2d " " "	10
Best Sulky,	1
3d "	1
Best Farm Wagon for six horses,	1
" " " four "	1
" " " two "	1
2d " " " "	
Best Horse Cart, (dumping,)	
2d " " "	
Best Ox Cart and Yoke,	
" Rigging for hauling hay, fodder or straw,	
" Hand Cart,	
" Dumping Wagon,	1

CLASS F.—MECHANICS.

Dr. WM. R. HOLT, Superintendant.

No. 47.—*Machinery.*

Best Steam Engine not less than 8 horse power,	$5
" Portable Saw Mill,	2
" " Grist Mill,	1
" Shingle or Stave Cutter,	2
" Sewing Machine,	1
" Smut Machine,	1
" Ditching Machine,	
" Brick Machine,	1

No. 48.—*Farm and Domestic Tools.*

Best Churn,	$
" Sausage Cutter,	
" Cheese Press,	
" Grain Cradle,	
" Hay Knife, for cutting down hay and straw stacks,	
Best Scythe Snathe	
" Briar Hook,	
" Weeding Hoes for Corn,	
" Cotton Hoes,	
" 8 Hand Rakes, made in the State,	
" 3 Hay Forks, " "	
" 3 Axes, " "	
" Set of Horse Shoes, "	
" 6 Wooden Buckets, "	
" 6 Wooden Tubs, "	
" Flour Barrels, not less than three,	
" Display of Cooper's Ware, adapted to household use, made in the State,	
" and most numerous collection of Agricultural Implements,	
" and most numerous collection of Agricultural Implements manufactured in the State by the exhibitor,	

No. 49.—*Saddlery, &c.*

Best set of Wagon Harness,	$
" " Carriage "	
2d " " "	
Best Buggy Harness,	
2d " "	
Best Man's Saddle, Bridle and Martingal,	

" Woman's " " "	5
" Cart Gear,	3
" Plow Gear,	3
" Plantation Cart Saddle,	3

CLASS G.—MECHANICS.

J. W. B. WATSON, SUPERINTENDANT.

No. 50.—*Cabinet Work.*

Best Desk or Secretary, made of native wood,	$15
" Bedstead,	10
" Bedstead for invalid,	8
" Chair for invalid,	6
" Cradle or Crib for Children,	4
" Rocking Chair,	5
" Specimen of Parlor Chairs not less than 2,	6
" 6 Sitting Chairs,	3
" Centre Table or Pier Table,	5
" Toilet Table,	5
" Sofa,	5
" Wardrobe,	5
" Side board,	5
" Bureau,	10
" Enclosed Washstand,	4
" Ottoman,	3
" Footstool,	2
" Window Sash,	2
" Window Blinds,	2
" Panel Door,	2
" Collection and variety of Fancy Cabinet Work made by one exhibitor,	20
" Piano Stool,	2

No. 51.—*Shoes, Hats, &c.*

est pair Men's Boots made in the State,	$5
2d " " " " " "	3
est 6 pair of Brogan Shoes,	5
2d 6 " sewed Shoes, (fine,)	5
est pair Brogan Boots made in the State,	5
" 6 Plantation Hats,	5
" 6 Wool Hats,	5
" Straw or Grass Hats,	3

No. 52.—*Sundries.*

est Piano Forte,	$10
do do do manufact'd in the State,	10
2d do do do do do	5
est lot of Guns, made in the State,	10
do Stone Ware, do do	5
do Earthen Ware, do do	5
do Cast (hollow) Ware, do	5
o Leather, sole, calf & kip, do	5
o side of Harness Leather, do	5
o Book Binding,	5
o Dressed Buck, Sheep or Goat Skins, made in the State,	5
st and greatest variety of Edge Tools, Augurs,, &c., made in the State,	10
st and greatest variety of Mechanics' Tools, made in the State,	10
Best variety of Tallow, 25 lbs., with process of making,	2
Best lot of Soap, 30 lbs., with process of making,	5
Best specimen of Toilet Soap, with process of making,	3
Best specimen of Shaving Soap, with process of making,	3
Best doz. Brooms, manuf'ct'd in the State,	2
do doz. Hearth Brooms, manufactured in the State,	2
Best doz. Whisk Brooms, manufactured in the State,	2
Best bbl. of North Carolina Lime,	5
do set of Knives and Forks, manufactured in the State,	5
Best Carriage or Wagon Hubs, manufactured by machinery,	5
Best Railway Rolled Iron, not less than 1 ton, manufactured in the State,	100
Best Pig Iron, manufact'd in the State,	15
do Hammered Bar Iron, not less than 1 ton, manufact'd south of the Potomac,	10
Best keg of Cut Nails, made in the State,	5

CLASS H.—MANUFACTURES.

FRANCIS FRIES, SUPERINTENDANT.

No. 53.—*Mill Fabrics made in the State.*

Best piece of Cassimere, not less than 15 yards,	$10
do piece Satinette, not less than 15 yds.,	6
do do Woolen Jeans, do do	5
do do Linsey or Kersey, for negro clothing, net less than 15 yards,	10
Best piece Flannel, not less than 15 yds.,	5
do pair of Blankets,	5
do piece of Cotton Oznaburgs, not less than 30 yds.,	5
do piece Woolen Carpet, not less than 24 yards,	10
Best Hearth Rug,	3
do piece Cotton Shirting or Sheeting,	5
do do Bedticking,	5
do do Cotton Jeans,	5
do bales Cotton Yarns, all numbers,	5
do lot of Cotton Twine,	3
do bundle of Printing Paper,	5
do do Colored or Envelope Paper,	5
do do Wrapping Paper,	5
do coil of Rope, Hemp or Cotton,	5
do Hair Mattress,	10
do Mattress of moss, shucks or cotton,	5

No. 54.—*Household Fabrics made in the State.*

Best Patch Work Quilt, (cotton,)	$5
2d do do do	2
Best do do (silk,)	5
2d do do do	2

Best Raised Work Quilt,	5
2d do do	2
Best Counterpane, (woven,)	5
2d do do	2
Best Counterpane, (knit,)	5
2d do do	2
Best Counterpane, (crotchet,)	5
do do do	2
Best Hearth Rug, do	5
2d do do do	2
Best pair Yarn Hose,	2
2d do do do	1
Best pair Silk Hose, do	2
2d do do do	1
Best Woolen Shawl,	3
2d do do do	1
Best Foot Mat,	1
do piece Negro Woolen Cloth, 18 yds,	5
do do Tow Cloth, 10 yards,	5
do do Tow and Cotton Cloth,	3
do do Linen,	5
do Sewing Silk, ¼ lb.,	5

CLASS I.—MANUFACTURES.

WM. R. COX, SUPERINTENDANT.

No. 55—*Fine Crotchet Work in Spool Cotton, &c.*

Best Worked Collar,	$3
2d do do	2
Best Worked Undersleeves,	$3
2 do do	2
Best Worked Set, (collar and sleeves,)	5
2d do do do do	3
Best Infant's Cap,	2
2d do do	1
Best specimen of Lace, at least 3 yards,	3
2d do do do do	2
Best specimen of Crotchet Work,	3
2d do do do do	2
Best Crotcheted or Embroidered Shawl,	5
2d do do do do	3
Best set of Table Mats,	2
2d do do do	1
Best Tidy,	2
2d do	6

No. 56.—*Raised Worsted Work.*

Best Piano Cover,	$6
do Table Cover,	4
do Hearth Rug,	6
do Chair Cover,	3
do Ottoman Cover,	2
do Lamp or Vase Mat,	1
do Sofa Pillow,	2

No. 57.—*Embroidery in Silk.*

Best Lady's Dress,	$6
2d do. do	3
Best Lady's Shawl,	6
2d do do	3
Best Lady's Mantle,	6
2d do do	3
Best Lady's Scarf or Neck Tie,	4
2d do do do	2
Best Lady's Apron,	4
2d do do	2
Best Vest,	6
2d do	3
Best Child's Dress,	6
2d do do	3
Best Sack or Spencer,	3
2d do do	2
Best Boy's Jacket,	3
2d do do	2
Best Infants Cloak or Blanket,	2
2d do do do	1
Best suit of Boy's Clothing,	4

No. 58.—*Embroidery in Cotton.*

Best Child's Dress,	4
2d do do	2
Best Sack or Spencer,	4
2d do do	2

No. 59.—*Emiroidery in Worsted.*

Best Piano Cover,	4
2d do do	2
Best Table Cover,	4
2d do do	4
Best Chair Cover,	2
2d do do	4
Best Ottoman Cover.	2
2d do do	4
Best Hearth Rug,	
2d do do	
Best Lamp or Vase Mat,	

No. 60.—*Knitting or Nettiny.*

Best Specimen of Netting in Wool,	$
do do Knitting do	
2d do do do	
Best do Netting in Cotton,	
do do Knitting do	
2d do do do	
Best Infant's Cap,	
do Sontag do	

No. 61.—*Fancy Work.*

Best Ornamental Shell Work,	$
2d do do do	
Best specimen of Wax Flowers,	
2d do do do	
Best specimen of Feather Work,	
2d do do do	
Best specimen of Hair Work,	
2d do do do	
Best Leather Work,	
2d do do	
Best specimen of Wax Fruit,	
2d do do do	

No. 62.—*Needle Work.*

Best Collar,	$3
2d do	2
Best Undersleeves,	2
2d do	1
Best Collar and Sleeves,	4
2d do do do	2
Best Handkerchief,	2
2d do do	1
Best Child's Dress,	4
2d do do	2
Best Linen Yoke for Ladies,	2
Best Lady's Underskirt,	3
2d do do	2
Best Gentleman's Shirt,	3
2d do do	2
Best Boy's Shirt,	2
2d do do	1
Best Lady's Robe de Chambre,	5
2d do do do	3

No. 63.—*Fine Arts.*

Best specimen of Daguerreotypes,	$5
do do Ambrotypes,	5
do do Photographs,	5
do do Colored Photographs,	8
do Improvement in Ambrotypes or Daguerreotypes,	5
Best specimen of Painting in Oil,	10
2d do do do do	5
Best do do do Water Colors,	5
2d do do do do do	3
Best do Grecian Paining,	4
2d do do do	2
Best do Pencil Drawing,	5
2d do do do	3
Best do Architectual Drawing,	5
2d do do do	4
Best do Pastel Drawing,	3
2d do do do	2
Best specimen of Miniature Painting,	10
Best Crayon Sketch,	4
2d do do	2
Best Oriental Painting,	4
1d ko do	3

[Discretionary Premiums.—Judges will recommend to the Executive Committee for Premiums, any articles in each class deemed worthy, and for which a special premium has not been offered.)

☞ The attention of the Judges is to be called to the fact that no article can take two premiums.

REGULATIONS.

1.—All members of the North Carolina State Agricultural Society will be furnished with a badge of membership, upon payment of the annual tax of $2, and will be required to wear the same during the Fair. This badge will admit the bearer, his wife and single daughters and sons under eighteen years of age during the fair.

2.—Agricultural Societies and Institutions from other States are invited to send Delegates. Such delegates will be presented with a complimentary card.

3.—All exhibitors who intend to compete for the premiums of the Society, must become members of the same, and have their articles on the ground and entered at the Secretary's Office in Reception Hall, at or before 5 o'clock on Monday evening, October 17th, without fail, so that they may be arranged in their respective departments.

4.—The regulations of the Society must be strictly observed by exhibitors, otherwise the Society will not be responsible for the omission of any article or animal not entered under its rules.

6.—No article or animal entered for a premium, can be removed or taken away before the close of the exhibition, No premium will be paid on articles or animals removed in violation of this rule.

5.—All articles and animals entered for exhibition must have cards attached with the number as entered at the Secretary's office; and the exhibitors must in all cases obtain their cards previous to placing their articles or animals on the Fair Grounds.

7.—Those who wish to offer animals or articles for sale during the Fair, must notify the Secretary of such intention at the time of entry.

8.—The Executive Committee will employ a day and night guard, and will use all reasonable precaution in their power, for the safe preservation of all articles and stock on exhibition, but will not be responsible for loss or damage that may occur. Exhibitors must give attention to their articles or animals during the Fair, and at the close of the exhibition attend to their removal.

9.—The awarding committee of judges selected for the next Fair, are earnestly requested to report themselves to the Chairman of the Executive Committee, at Reception Hall, upon the grounds of the Society, on Tuesday morning, the 16th of October, 1860.

10.—In no case can the judges award special or discretionary premiums; but will recommend to the Executive Committee any articles in their class which they may deem worthy of special notice and for which a premium has not been offered.

11.—The judges on animals will have regard to the symmetry, earlymaturing, breeding, and characteristics of the breeds which they judge. They will make proper allowances for the age, feeding and condition of the animals, especiallyin the breeding classes, and will not give encouragement to over-fed animals.

12.—No stock of inferior quality will be admitted within the grounds. A committee will be appointed to rule out all below a medium grade.

13.—Animals to which premiums have been awarded must be paraded around the track, that the visitors may see the prize animals.

14.—No person will be allowed to interfere with the judges during their adjudicitations.

15.—The several Superintending Committees will give particular directions to all articles in their departments, and see that all are arranged in the best order possible to lessen and facilitate the labors of the judges in their examination.

16.—The Superintendents will attend each set of judges, in their respective departments and point out the different articles or animals to be examined, will attach prize cards to the articles or flags to the successful animals after the judges' reports have been made up and delivered to the chairman of the Executive Committee.

20.—The Chief Marshal, with efficient aids, will be in attendance during the hours of exhibition to keep proper order.

21.—No exhibitor will be permitted to enter more than one animal in each of the sub classes.

2.2—Animals, when duly entered, are well provided for by the Society, without charge to the owner, and cannot be removed from the ground, except by permission of the Executive Committee.

23.—All machines, implements, or other products of mechanical art, must be exhibited by their respective makers, or inventors, or improvers, or their assignors, to or for whom only premiums for such articles will be awarded.

24.—Every machine or implement offered for a premium must be so designated or described as will serve to identify it to future purchasers, and also the selling price of the article must be stated and marked on the labels and in the published reports of premium articles.

25.—Efficiency, cheapness and durability will be regarded as chief excellencies in every machine or implement.

26.—The track will be open for the trial of harness and saddle horses every day during the Fair.

27.—A band of music will be in attendance each day during the hours of exhibition.

28.—An efficent police will take charge of the grounds during the night.

WM. R. HOLT,
Chairman Executive Committee.
WILSON W. WHITAKER,
Secretary.

STATE FAIR, 1860.

List of Judges.

### LIVE STOCK.

HORSES.

Thorough-breds, Quick Draught and Saddle Horses,

Judges.—Gov. Manly, Luke Blackmer, C. B. Morrison, Erasmus H. Costen.

Heavy Draught Horses.

Judges.—N. L. Williams, R. C. Pearson, Dr. John G. Smith.

Jacks and Jennets—Mules.

Judges.—D. W. Saunders, D. Hinton, J. W. B. Watson, W. M. Boylan.

CATTLE.

North Devons, Durhams, Herefords, Ayrshires, Holsteins, Alderneys and Jerseys.

Judges.—Bryan Grimes, jr., Jos. Turner jr., S. W. Cole.

Grades, Natives, Imported Cattle, Milch Cows.

Judges.—E. A. Crudup, E. Smith, W. B. Wadsworth.

Working Oxen, Fat Cattle.

Judges.—Needham Price, W. Russell, Edwin Harris.

SHEEP.

Merinoes, Cotswolds, Saxons, South Downs, Leicesters, Natives or Grades.

Judges.—Seth Jones, Warren Winslow, T. G. Walton.

SWINE.

Large Breeds, Small Breeds, Grades, Natives.

Judges.—John Hutchings, C. Perkins, J. F. Slade, Maj. M. S. Stokes.

POULTRY.

Judges.—Henry Mordecai, C. B. Wood, J. V. Perkins, H. J. B. Clark.

AGRICULTURE.

Agricultural Productions.

DGES.—R. R. Bridges, L. O'B. Branch, H. . Clark, W. C. Means.

t Provisions, Butter and Cheese, Flour.

DGES.—B. T. Blake, J. W. Kirkland, John inslow, N. L. Williams, W. C. Upchurch, . L. Patterson.

Preserves, Pickles, Fruits in Cans.

DGES.—W. W. Holden. T. D. Ledbetter, m. Barrow, Mrs. L. P. Cotten, Mrs. T. . Walton, W. J. Saunders.

tive Wines—Fruits adapted to the South —Fruit Trees adapted to the South.

GES.—Gen. John Winslow, W. L. Steele, . A. Engelhard, W. J. Palmer, Col. B. R. oore.

Vegetables.

GES.—Jordan Womble, sr., S. W. West. rook, F. P. Latham, J. S. Davidson.

MECHANICS.

Plows.

GES.—L. Hinton, A. T. Mial, J. F. peight, Alexander Miller.

rows, Planters and Sowers, Rollers, Cultivators and Grain Drills.

GES.—Peter E. Smith, W. A. Faison, W. . Page, J. C. McDowell, E. R. Stanly.

eshing Machines, Fanning Mills, Hay, w, Stalk and Vegetable Cutters—Corn Shellers and Cob Crushers.

GES.—E. M. Holt, P. E. Smith, H. Mor- ecai, L. Hinton, G. W. Ruffin.

ping and Mowing Machines, Horse Pow- Stump Pullers—Hay and Cotton Press and Implements.

GES.—S. F. Patterson, J. W. B. Watson, . A. Crudup.

Carriages, Wagons, Carts, &c.

GES.—W. R. Cox, Dr. P. E. Hines, D. A. arnes, P. Cowper.

Machinery.

GES.—Dr. T. D. Hogg, Silas Burns, Al- rt Johnson, G. H. Wilder, T. E. Roberts, Bates.

Farm and Domestic Tools.

ES.—Gov. Bragg, John D. Whitford, Jno. L. Bridgers, S. S. Royster, Jesse H. Powell, J. D. Powell.

Saddlery.

JUDGES.—A. Upchurch, W. D. Jones, E. A. Keith, R. A. Sizer.

Cabinet Work.

JUDGES.—Gov. Reid, John W. Syme, F. I. Wilson, Wm. Thompson, John F. Hauff.

Shoes, Hats, &c.

JUDGES.—James McKimmon, S. Hayes, J. D. Powell, J. M. Spraggins.

Sundries.

JUDGES.—A. C. Hege. P. F. Pescud, W. C. Whitford, Alex. Long, W. J. Palmer.

MANUFACTURES.

Mill Fabrics made in the State.

JUDGES.—Jo. Turner, jr., K. P. Battle, E. C. Yellowley, E. M. Holt, J. R. Franklin.

Household Fabrics made in the State.

JUDGES.—W. L. Pomeroy, Mrs. McKay, Mrs. W. M. Boylan, Miss Kate Shepard.

Fine Crotchet Work, in spool cotton—Raised Worsted Work.

JUDGES.—W. L. Saunders, Mrs. Cotten, Mrs. Primrose, Mrs. G. W. Mordecai, Miss Patridge, Miss Gordon, Miss Mary Hall, Miss S. Mitchell.

Embroidery in Silk—Embroidery in Cotton.

JUDGES.—Miss S. Patridge, Miss Stronach, Miss Curtis, Miss Kate Smith, Miss Pattie Williams.

Embroidery in Worsted.

JUDGES.—Mrs. W. W. Holden, Miss S. D Lindsey, Mrs. Gov. Ellis, Miss Harriet Harris, Mrs. Gen. Means.

Knitting or Netting—Fancy Work.

JUDGES.—Miss Colburn, Mrs. R. S. Tucker, Mrs. Wm. Grimes, Mrs. Ann Hall, Miss A. C. Cotten.

Needle Work.

JUDGES.—Dr. Smedes, Mrs. J. B. Bobbitt, Mrs. Louisa Norman, Gov. Swain.

FINE ARTS.

JUDGES.—D. M. Barringer, Chas. E. Shober, Mrs. Gov. Ellis, A. M. Lewis, Mrs. J. A. Engelhard, Mrs. J. R. Williams.

Ayer's Sarsaparilla.

A compound remedy, in which we have labored to produce the most effectual alterative that can be made. It is a concentrated extract of Para Sarsaparilla, so combined with other substances of still greater alterative power as to afford an effective antidote for the diseases Sarsaparilla is reputed to cure. It is believed that such a remedy is wanted by those who suffer from Strumous complaints, and that one which will accomplish their cure must prove of immense service to this large class of our afflicted fellow-citizens. How completely this compound will do it has been proven by experiment on many of the worst cases to be found of the following complaints.

Scrofula and Scrofulous Complaints, Eruptions and Eruptive Diseases, Ulcers, Pimples, Blotches, Tumors, Salt Rheum, Scald Head, Syphillis and Syphilitic Affections, Mercurial Disease, Dropsy, Neurolgia or Tic·Doulouruex, Debility, Dyspepsia and Indigestion, Erysipelas, Rose or St. Anthony's Fire, and indeed the whole class of complaints arising from Impurity of the Blood.

This compound will be found a great promoter of health, when taken in the spring, to expel the foul humors which fester in blood at that season of the year. By the timely expulsion of them many rankling disorders are nipped in the bud.—Multitudes can, by the aid of this remedy, spare themselves from the endurance of foul eruptions and eruptions and ulcerous sores, through which the system will strive to rid itself of corruptions, if not assisted to do this through the natural channels of the body by an alterative medicine. Cleanse out the vitiated blood whenever you find its impurities bursting through the skin in pimples, eruptious, or sores; cleanse it when you find it is obstructed and sluggish in the veins; cleanse it whenever it is foul, and your feelings will tell you when. Even where no particular disorder is felt, people enjoy better health, and live longer, for cleansing the blood. Keep the blood healthy, and all is well; but with this pabulum of life disordered, there can be no lasting health. Sooner or later something must go wrong, and the great machinery of life is disordered or overthrown.

Sarsaparilla has, and deserves much, the reputation of accomplishing these ends. But the world has been egregiously deceived by preparations of it, partly because the drug alone has not all the virtue that is claimed for it, but more because many preparations, pretending to be concentrated extracts of it, contain but little of the virtue of Sarsaparilla or any thing else.

During late years the public have been misled by large bottles, pretending to give a quart of Extract of Sarsaparilla for one dollar. Most of these have been frauds upon the sick, for they not only contain little, if any, Sarsaparilla, but often no curative properties whatever. Hence, bitter and painful disappointment has followed the use of the various extracts of Sarsaparilla which flood the market, until the name itself is justly despised, and has become synonymous with imposition and cheat. Still we call this Compound Sarsaparilla, and intend to supply such a remedy as shall rescue the name from the load of obloquy which rests upon it. And we think we have ground for believing it has virtues which are irresistable by the ordinary run of the diseases it is intended cure. In order to secure their complete eradi tion from the system, the remedy should be ju ciously taken according to directions on the bot

PREPARED BY

DR. J. C. AYER & CO.,

Lowell, Mass.

Price, $1 per Bottle; Six Bottles for $5.

Ayer's Chery Pectoral

has won for itself such a renown for the cure every variety of Throat and Lung Complaint, t it is entirely unnecessary for us to recount the dence of its virtues, wherever it has been employ As it has long been in constant use through section, we need not do more than assure the ple its quality is kept up to the best it ever been, and that it may be relied on to do for th relief all it has ever been found to do.

Ayer's Cathartic Pills,

FOR THE CURE OF

Costiveness, Jaundice, Dyspepsia Indigesti Dysentery, Foul Stomach, Erysipelas, Headac Piles, Rheumatism, Eruptions and Skin Disea Liver Complaint, Dropsy, Tetter, Tumors and S Rheum, Worms, Gout, Neuralgia, as a Dinner P and for Purifying the Blood.

They are sugar-coated, so that the most sen tive can take them pleasantly, and they are best aperient in the world for all the purposes o family physic.

Price 25 cents per Box; Five boxes for $1

Great numbers of Clergymen, Physicians, Sta men, and eminent personages, have lent th names to certify the unparalleled usefulness of th remedies, but our space here will not permit insertion of them. The Agents below named f nish gratis our American Almanac in which t are given; with also full descriptions of the ab complaints, and the treatment that should be f lowed for their cure.

Do not be put off by unprincipled dealers w other preparations they make more profit on. I mand AYER's, and take no others. The sick w the the best aid there is for them, and they sho have it.

All our remedies are

Sold by Wiiliams & Haywood, Raleigh; Po & Gorrell, Greensboro'; Henderson & Ennis, S isbury: and all merchants generally.

At wholesale by M. A. C. A. Santos, Norfo Va.: Purcell, Ladd & Co., Richmond Va.

DRAINING TILE.

For Land Drainage.

100,000 2, 3 and 4 inch Sole Tile on hand, a for sale. Address,

L. M. HATCH,
Charleston, S. C

April 2, 1860. 4—toa

MANTILLAS.

LACE Mantles and Points, Barege and Bar Anglais Mantles, Turnouts and Dusters at

HEARTT & IREDELL'S

From the Baltimore American.

BALTIMORE
ıde Agricultural Implements.
VERSUS EASTERN.

E notice that Messrs. R Sinclair, Jr. &
Co. of this city, received FIRST PREMI-
S for their deservedly famed Agricultural Im-
nents at the recent Agricultural exhibitions
Fairs held in Maryland, Virginia, N. Carolina,
the Southwestern states, namely:
the Maryland State Agricultural Society, 14 *Pre-*
ms, By the Virginia & N. Carolina agricultural
ety, 9 Premiums, By the Seaboard Agricultural
ety, held at Norfolk, Twelve Premiums.
lso awarded to Sinclair & Co., by the Kentucky
Tennessee State and County Fairs (first) Pre-
ms on Sinclair's Patent Masticator for mashing
cutting Corn Stalks, Straw, &c., making in
Thirty-nine First Premiums in favor of Sin-
r & Co,'s Wares, and showing a decided pre-
nce by the judges in favor of Baltimore Made
lements.
ncluded in the above Premiums were Stetson's
ent Reaping and Mowing Machine, Sinclair's
ent Straw and Fodder Cutters, Sinclair's Patent
al Threshing Machine, Wheat Drill with Gu.
Attachment, Serrated Clod Roller, Corn Shel-
, Corn Drills, &c.
n the above estimate of Premiums, the follow·
were not included in the different contests, all
ing received their quota of Premiums at Fairs
viously held, viz:
lorse Powers, Spur and Bevel Geared; Corn
ls, Burr and Iron; Fanning Mills; Rolling
eens; Agricltural Furnace; Chain Pnmps;
ıe Spreaders; Garden Tools, &c., &c.
☞ The Agricultural Implements and Machi-
y manufactured by us are constructed in the
st substantial and durable manner. great ca-
ity, and particularly adapted for Southern use
usage. Planters or Merchants wanting sup-
s will be furnished with Price Lists on appli-
on.

R. SINCLAIR, Jr. & Co.,
Manufacturers, Baltimore, MD.
pril, 1860. 4—6m

WATCHES! WATCHES!!
GOLD AND SILVER.

YOU WANT TO BUY A VERY FINE Watch,
I have them for sale.

seph Johnson, Church St., 19 Jewelled.
have sold them for thirty years—always gave
ire satisfaction.

Vill. Dixon Watch, Equally as Good.
have sold Thousands of Dollars worth of the
ve Watches, and *never* had one returned. Also,

he American Watch—Two Makers.
Varranted excellent Time-keepers—durable
tch.
ogether with very fine GENEVA WATCH, for
lies, large assortment.
hose wanting a Watch to keep time by will do
l to call, as the *Watches shall* be as represen-
. I will sell as cheap as they can be bought
where. JOHN C. PALMER.
Raleigh, Feb. 3, 1860. 25—tf

CATARACT WASHING MACHINE.
Clothing, Time, and abor Saved.
Indispensable to Housekeepers.

THE most simple, economical, and durable article ever offered to the public to alleviate the discomforts of wash-day.

DESCRIPTION.

It consists of a metal cylinder, with ribs on the inside, and an interior cylinder of wood, with ribs. There is a space of from 6 to 8 inches.—One crank turns both cylinders at the same time in opposite directions, rapidly creating a suds, forcing the water through the clothes, and effectually removing the dirt. The action of the water does the work quickly, dispeness entirely with rubbing, and thus saves the wear of clothes.

SULLIVAN & HYATT, Proprietors,
54 Beekman St., New York.

N. B.—State and County Rights for sale, and purchasers supplied with Machines at wholesale on liberal terms.

☞ A Machine is in operation by a laundress daily, at our Salesroom 439 Broadway.

April 1860. [J. C. & CO.] 4—ta$6.

BE MERCIFUL,
TO THE NOBLE ANIMAL—THE HORSE.

HE is criminal who will allow his Horse to die with the Bots, or similar disease, when it is in his power to always have on hand a remedy that will cure the disease and save the Horse's life. Brown's Remedy has been before the public for several years past, and has been tried by hundreds, perhaps thousands, and the Proprietor has yet to hear of the first instance in which it failed to give relief. When given as directed, if it fails, the money will be refunded. For ONE DOLLAR, this valuable Recipe, together with others, which will be found conducive to the health and thrift of the Horse, and a great preventative of Distemper. Address

R. M. BROWN, P. M.
New Hill P. O., Wake co., N. C.

Read the following Certificate:

We the undersigned have used and known used the Receipt advertised by Robt. M. Brown, Esq., for the cure of Bots or Grubs in horses, and consider it the best remedy known, for that disease· Indeed, we have never known it fail giving relief in the very first instance, even when horses were suffering the severest agony. And the remedy is quick and effectual. For the benefit of every body, and especially for the benefit of that noble animal—the Horse—we recommend all to procure this valuable Receipt. We have known Mr. R. M. Brown's remedy to be used in very many instances, and never without effect. In some cases it has accomplished astonishing cures.

J. L. BENNETT, T. B. HOLLEMAN,
P. R. JONES, JOHN BENNETT,
EDWIN HOLLEMAN, of Wake County.
JOHN R. WARD, A. P. STROUD,
D. M. DURHAM, of Orange County, N. C.
JOHN C. BURGESS, WM. H. BURGES.
Randolph County. N. C

W. W. COX,
Clayton, Johnston, N. C.

NEW YORK TYPE FOUNDRY.

63 & 65 Beekman Street.

CHAS. T. WHITE & CO.

BOOK, NEWS, JOB,

AND

FANCY TYPE.

Borders, Ornaments, Brass & Metal Rule,

PRESSES, CHASES, CASES, GALLEYS, INKS, &C.,

For Sale upon the Most Reasonable Terms.

Our "IMPROVED METAL," having been tested by many of the most extensive printers throughout the country, and pronounced unrivalled for DURABILITY, we are now using it exclusively in the manufacture of our Type, and invite printers to test it by giving us a trial.

A Specimen Book will be sent upon application to those wishing to order: also estimates in detail of all articles necessary to fit out a Printing Office. 29—ta$10.

☞ This paper is printed on type from the above Foundry.

Norfolk Steam Ornamental

WROUGHT AND CAST IRON RAIL WORKS.

For Burial Lots, Public Squares Balconies, Gardens, &c.

No. 19, WIDE WATER STREET.

WE would call the attention of the public to our establishment for the manufacture of the above description of work. We have such an one, we think, that would do credit to the South, if properly patronized. We have introduced at great expense machinery of the latest improvements and in connection an Iron Foundry for Rail Castings, &c. We have new and elegant patterns, both plain and ornamental, many of our own designs, which are entirely new and beautiful.

We now appeal to our Southern friends for their patronage and influence to this establisnment; we pledge ourselves to give entire satisfaction. We will sell as low and give as good work as can be be done in the country, and if every order does not come up to our representations, turn it back upon us at our own expense. Orders punctually filled.

SAML. H. HODGES & CO

Norfolk, March 7, 1860. 28—6m.

MILITARY TACTICS.

COOPER'S MACOMB'S TACTICS. A concise system of instructions and regulations for the Militia and Volunteers of the United States, comprehending the exercises and movements of the Infantry, Light Infantry and Riflemen, Cavalry and Artillery.

Scott's Infantry Tactics in 3 volumes.

For sale at POMEROY'S.

Raleigh, Feb., 1860. 27—

REMEMBER, THE UNION STILL STANDS!

AND

ALEXANDER CREECH.

AT HOME,

Wholesale and Retail Dealer in

Staple and Fancy Dry Goods

HAS now received his Spring and Summ stock of Staple and Fancy Dry Goods f 1860, embracing a great variety of styles of

Ladies' Dress Goods,

of the newest styles and latest importations, whic he respectfully asks his friends and customers call and examine. He thinks they can find som thing that will suit them, for he has a large an complete stock of Staple and Fancy Dry Good

Bonnets and Flats.

White Crape, some very handsomely Trimme Straw, Braid and Leghorn Bonnets, a large a sortment, Ladies' and Misses' Flats.

He flatters himself that he has got much th largest and best assortment to be found in th city of Raleigh. Customers can by calling an looking satisfy themselves.

Shawls, Wrappers, Ribbons, &c.

Summer Shawls and Wrappers, Ribbons, En broideries, Hoop Skirts and Silk Parasols.

Hats! Hats!

Beebe Moleskin Hats, Black and Fancy So Hats, Straw, Braid and Leghorn Hats for men an boys. His is the house to buy Hats at, as he h a large and fine assortment.

Boots and Shoes.

A great variety of all sizes and styles.

Now customers, this is no humbug or idle cha for he means what he says and says what he mean When you see A. Creech above the door wa right in; you will find him always ready an willing to give you the worth of your money.

A. CREECH.

Raleigh, March 24, 1860. 31—

DESIRABLE RESIDENCE FOR SAL

THE subscriber offers for sale a very desirab lot, containing about TEN ACRES of go land, situated immediately on the N. C. Railroa about six miles and a half west of Raleigh. T improvements on the lots are good, and conv niently arranged, consisting of a neat cotta building, with fire-places in every room; a go kitchen with two rooms and double chimney; good well of water in the yard that *never* fail also, a good barn and stables, conveniently a ranged; and a No. 1 garden, in a good state cultivation, in which there is a fine lot of well s lected peach scions ready for planting.

Persons desiring a bargain, would do well examine the premises soon—six and a half mil west of Raleigh, Asbury Station, N. C. R. R.— call on the undersigned at the *Biblical Record* Office, Raleigh. JOSIAH JONES.

Raleigh, March 17th, 1860. 30—7t

ARLY GARDEN SEEDS.

. DREER, Seedsman and Florist, 327
estnut Street Philidelphia, Penn., offers
k of *Fresh and Genuine*

DEN AND FLOWER SEEDS.

he varieties the following can be recom
and will be carefully packed and forwards
il or express, in 5 and 10 cents papers, or
antity at prices annexed. When by mail
must be added for every ounce ordered to
stage.
S, at 10c per ounce ; Extra Early, Early
ip, Long Blood.
AGE, 20c per ounce ; Early York, Large
innigstadt, Flat Dutch, Red Drumhead,
mhead.
RABI, 20c per ounce ; Early White and
ienna, Large Late.
FLOWER, 75c per ounce Early and Late
Walcheren, Early Paris, $1 per ounce ;
er; $2 per oz.
OT, 10c per ounce ; Early Short Horn,
rn, Long Orange.
RY, 20c per ounce; Dreer's Improved
lid, Red Solid, Celeriac or turnip-Rooted.
MBER, 20c per ounce; Early Cluster,
ite Spined Long Green.
LANT, 50c per ounce ; Early Long Large
und.
UCE, 20c per ounce ; Early Curled, Ear-
ge, Royal Cabbage, Ice Coss, Green Coss.
MELON, 10c per ounce; Large Mut
en Citron Jenny Lind.
ER MELON, 10c per ounce ; Spanish,
Sweet, Apple Pie, for sauces and Pies,
aper.
N, 20c per ounce ; Large Red Yellow
, White or Skin.
LEY, 10c per ounce ; Extra Curled, My-
isbing.
NIP, 10c per ounce ; Large Sugar, Guern-

at 50c per quart; Extra Early Tom
Napoleon, Eugenia, Hairs' Dwarf Marrow
at 25c per quart; Early Washington.
erial, White and Black-eye Marrowfat,
ER, 50c per ounce ; Large Sweet Bell,
Cayenne.
PKIN, 10c per ounce ; Large Cheese.
Mammoth, 20c per ounce ; Missouri sweet
10c per packet.
SH, 10c per ounce; Early Long Scarlet
; Demi Long.; Scarlet and White Turnip ;
ples, Yellow Turnip, Black Spanish.
SH, 10c per ounce; Early Bush, Summer
k.
H, 20c per ounce ; Boston Marrow, Hub
ter varieties.
TO, 25c per ounce; Extra Early Red,
d Mammoth and Fejee Island, 10c per

IP, 10c per ounce, 75 cts. per pound;
ite Flat Dutch, Robeson's Golden Ball,
p Flat, Ruta Baga.
AND POT HERBS, in 5 and 10c pa.
ge, Thyme, Sweet Marjorum, Bazil, Sa-
ender, Balm, &c.,

OWER SEEDS BY MAIL.

rtability of Flower Seeds, render them
adapted for mailing. *Twenty select*
will be sent prepaid with full directions
how to cultivate *for one dollar.* A full supply of Vegetable Seeds to stock a Family Kitchen Garden, according to size, From Five to Twenty Dollars. *And* all seeds not here enumerated, can be supplied from my extensive collection, for which see Catalogues, which will be mailed to all applicants.

H. A. DREER,
327 Chestnut Street, Philadelphia.
2.—ta $5.

To Planters and Gardeners.

The subscribers offer for sale 60,000 barrels of Poudrette, made by the Lodi Manufacturing Company, in lots to suit purchasers. This article is in the twentieth year of its introduction into this country, and has outlived fertilizers of every other description, for the following reasons :—

1st. It is made from the night soil of the City of New York, by the L. M. Co., who have a capital of over $100,000 invested in the business, which is at risk should they make a bad article.

2d. For corn and vegetables it is the cheapest, neatest and handiest manure in the world, it can be placed in direct contact with the seed, force and ripens vegetation two weeks earlier, prevents the cut worm, *doubles* the *crop,* and is *without disagreeable odor.* Three dollars worth or two barrels is all sufficient to manure an acre of corn in the hill.

PRICE—1 bbl. $2,—2 bbls. $3,50,—5 bbls. $8, and over 6 bbls. $1,50 per barrel, delivered free of cartage to vessel or railroad in New York City.

A pamphlet containing every information, and certificates from farmers all over the United States, who have used it from two to seventeen years, will be sent free to any one applying for the same.

GRIFFING BROTHERS & CO.,
60 Courtlandt Street, New York.
March 1860. 3—2m. J. C. & CO., $3.

The Spirit of the Age,

A LARGE WEEKLY FAMILY NEWSPAPER

PUBLISHED IN RALEIGH, N. C.,

BY A. M. GORMAN,

EDITOR AND PROPRIETOR,

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PROSPECTUS

OF THE

NORTH CAROLINA PLANTER,

FOR 1860.

JAMES M. JORDAN, AGRICULTURAL EDITOR.
JOHN W. WOODFIN, *ASSOCIATE AGRICULTURAL EDITOR.
S. W. WESTBROOK, EDITOR FRUIT DEPARTMENT.
W. H. HAMILTON, EDITOR OF GARDENING AND FLORAL DEPARTM'T.

The Publisher of the N. C. PLANTER, after two years of anxiety and labor, during which he has endeavored to furnish the Agriculturists of North Carolina, with a reliable and valuable *home journal*, adapted especially and peculiarly to the soil, climate and products of our own State and the States adjoining, now presents them with his Prospectus for the third year.

He takes pleasure in calling attention to the Corps of Editors secured for 1860. They are all men capable of instructing their readers, both from scientific knowledge and practical experience, in the several departments over which they will preside; hence the readers of the North Carolina Planter will always be sure of a large supply of *original* matter, expressly appropriate to the various crops cultivated in our State, manner of cultivation, improving and renovating our soils—in a word every thing pertaining to the interest of North Carolinians engaged in the noble pursuits of husbandry, in the farm, garden, nursery and orchard.

With such facilities for furnishing a large supply of the best *original* matter, and the aid of many of our Farmers from whom we expect contributions in the way of *original communications*, together with a large exchange list of the best Agricultural journals published in the country—south, north and west—from which to cull the best selections, we feel confident we shall be able to make the North Carolina Planter equal to the very best Agricultural paper published in the Union.

The present No. begins a new year and the third volume. From the interest manifested for the continuance of the publication, and the strong promises made on the part of many of the Agriculturists of the State, we confidently expect a liberal support. Three thousand subscribers will *permanently* sustain the publication—and we hope to have this many on our list at a very early day—but we ought to have five or ten thousand before the year 1860 shall expire. We are sure if we had that many subscribers, the agricultural energy, enterprize and prosperity of the State—individual and collective—would increase a hundred fold.

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☞ We earnestly appeal to all friends of our Planter to aid in increasing its circulation. All Communications to be addressed to

A. M. GORMAN, Publisher,
Raleigh, N. C.

January, 1860.

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*Our Associate Editor we have procured from the Western portion of the State, so that every section may be represented in the Editorial departments, and thus have some portions of its pages especially adapted to the varied soils and climates of North Carolina. We have been very fortunate in securing the services of so able an Agriculturist as Mr. WOODFIN.

J D McDowell

MAY NUMBER, 1860.

NORTH CAROLINA PLANTER.

A MONTHLY

McDowell

Southern Agricultural Journal:

DEVOTED TO

THE IMPROVEMENT OF SOUTHERN FARMING, HORTICULTURE, FLORICULTURE, AND THE DOMESTIC AND MECHANIC ARTS.

JAMES M. JORDAN, AGRICULTURAL EDITOR.
JOHN W. WOODFIN, OF BUNCOMBE, ASSOCIATE EDITOR.
S W. WESTBROOK, HORTICULTURAL EDITOR.
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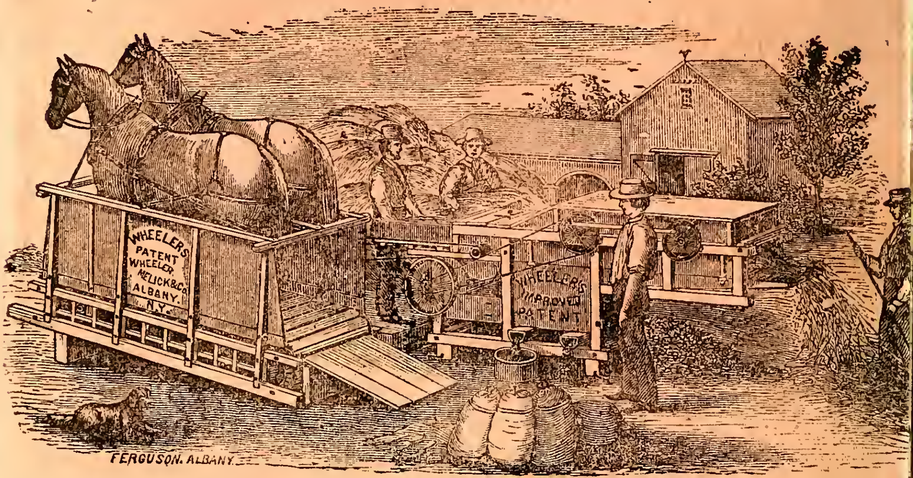
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(Continued on third page of cover.)

THE NORTH-CAROLINA PLANTER.

ebbotd to Agriculture, Horticulture, and the Mechanic Arts

Iœ tibi erunt artes.—Virgil. { These are the pursuits to which you should direct your attention.

OL. 3. RALEIGH, N. C., MAY, 1860. NO. 5.

Selected.

Formation and Character of the Soil.

or is the profit small the peasant makes,
ho smooths with harrows, or who pounds with
rakes,
ae crumbling clods, nor Ceres from on high
egards his labors with a grudging eye;
or his, who ploughs across the furrow'd grounds,
nd on the back of earth inflicts new wounds;
or he, with frequent exercise, commands
he unwilling soil, and tames the stubborn lands.
Virgil.

The soil is not to be regarded as a mys- rious mass of dirt, whereon crops are pro- iced by a mysterious process. Well as- rtained scientific knowledge has proved yond question, that all soils, whether in merica or Asia, whether in Maine or N. rolina, have certain fixed properties, hich render them fertile or barren, and e science of agriculture is able to point t these characteristics in all cases, so at we can ascertain from a scientific in- stigation what would be the chances for ccess in cultivating any soil which we amine.

The soil is a great chemical compound, d its chemical character is ascertained s in the case of plants), by analyzing it taking it apart.

We first learn that fertile soils contain both organic and inorganic matter; but, unlike the plant, they usually possess much more of the latter than of the former.

In the plant, the organic matter constitutes the most considerable portion of the whole. In the soil, on the contrary, it usually exists in very small quantities, while the inorganic portions constitute nearly the whole bulk.

The organic part of soils consists of the same materials that constitute the organic part of the plants, and it is in reality decayed vegetable and animal matter. It is not necessary that this organic part of the soil should form any particular proportion of the whole, and indeed we find it varying from one and a half to fifty, and sometimes, in peaty soils, to over seventy per cent. All fertile soils contain some organic matter, although it seems to make but little difference in fertillty, whether it be ten or fifty per cent.

The inorganic part of soils is derived from the crumbling of rocks. Some rocks (such as the slates in Central New York) decompose, and crumble rapidly on being exposed to the weather; while granite, marble, and other rocks will last for a long time without preceptible change. The *causes* of this crumbling are various, and are not unimportant to the agriculturist;

as by the same processes by which his soil was formed, he can increase its depth, or otherwise improve it. This being the case, we will in a few words explain some of the principal pulverizing agents.

1. The action of frost. When water lodges in the crevices of rocks, and *freezes*, it expands, and bursts the rock, on the same principle as causes it to break a pitcher in winter. This power is very great, and by its assistance, large cannon may be burst. Of course the action of frost is the same on a small scale as when applied to large masses of matter, and, therefore, we find that when water freezes in the *pores** of rocks or stones, it separates their particles and causes them to crumble. The same rule holds true with regard to stiff clay soils.—If they are *ridged* in autumn, and left with a rough surface exposed to the frosts of winter, they will become much lighter, and can afterwards be worked with less difficulty.

2. The action of water. Many kinds of rock become so soft on being soaked with water, that they readily crumble.

3. The chemical changes of the constituents of the rock. Many kinds of rock are affected by exposure to the atmosphere, in such a manner, that changes take place in their chemical character, and cause them to fall to pieces. The red kellis of New Jersey (a species of sandstone), is, when first quarried, a very hard stone but on exposure to the influences of the atmosphere, it becomes so soft that it may be easily crushed between the thumb and finger.

Other actions, of a less simple kind, exert an influence on the stubbornness of rocks, and cause them to be resolved into soils.† Of course, the composition of the soil must be similar to that of the rock from which it was formed; and, consequently, if we know the chemical character of the rock we can tell whether the soil formed from it can be brought under profitable cultivation. Thus feldspar, on being pulverized, yields potash; talcose slate yields magnesia; marls yield lime, etc.

The soil formed entirely from rock, contains, of course, no organic matter.* Stil it is capable of bearing plants of a certai class, and when these die, they are deposited in the soil, and thus form its organi portions, rendering it capable of supportin those plants which furnish food for animals Thousands of years must have been occupied in preparing the earth for habitatio by man.

As the inorganic or mineral part of th soil is usually the largest, we will conside it first.

As we have stated that this portion i formed from rocks, we will examine thei character, with a view to showing the di ferent qualities of soils.

As a general rule, it may be stated tha *all rocks are either sandstones, limestone or clays ; or a mixture of two or more c these ingredients.* Hence we find that a mineral soils are either *sandy*, *calcareou* (limey), or *clayey ;* or consist of a mixtur of these, in which one or another usuall predominates. Thus, we speak of a sand soil, etc. These distinctions (sandy, claye loamy, etc.) are important in considerin the *mechanical* character of the soil, bu have little reference to its fertility.

By *mechanical* character, we mean thos qualities which affect the ease of cultivatio —excess or deficiency of water, ability t withstand drought, etc. For instance, heavy clay soil is difficult to plow—retain water after rains, and bakes quite hard during drought; while a light sandy soil plowed with ease, often allows water t pass through immediately after rains, an becomes dry and powdery during drough Notwithstanding these differences in the mechanical character, both soils may b very fertile, or one more so than the othe without reference to the clay and san which they contain, and which, to *our o servation*, form their leading characteri tics. The same facts exists with regard t a loam, a calcareous (or limey) soil, or vegetable mould. Their mechanical texture is not essentially an index to the fertility, nor to the manures required enable them to furnish food to plants. is true, that each kind of soil appears have some general quality of fertility rreness which is well known to practical en, yet this is not founded on the fact at the clay or the sand or the vegetable atter, enter more largely into the consti- tion of plants than they do when they e not present in so great quantities, but certain other facts which will be here- ter explained.

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*The spaces between the particles.

†In very many instances the crevices and seams of rocks aro permeated by roots, which, by decay ng and thus inducing and the growth of other oots, cause these crevices to become filled with rganic matter. This, by the absorption of mois ure, many expand with sufficient power to burst he rock.

*Some rocks contain sulphur, phosphorus, et and these may, perhaps, be considered as organ matter.

As the following names are used to de- ote the character of soils, in ordinary ag- cultural description, we will briefly explain eir application :

A *Sandy soil* is, of course, one in which ind largely predominates.

Clay soil, one where *clay* forms a large reportion of the soil.

Loamy soil, where sand and clay are bout equally mixed.

Marl contains from five to twenty per ent. of carbonate of lime.

Calcareous soil more than twenty per ent.

Peaty soils, of course, contain large uantities of organic matter.*

We will now take under consideration hat part of the soil on which depends its bility to supply food to the plant. This ortion rarely constitutes more than five or en per cent. of the entire soil, sometim- ess—and it has no reference to the sand, lay, and vegetable matters which they contain. From analyses of many fertile soils, and of others which are barren or of poorer quality, it has been ascertained that the presence of certain ingredients is necesssary to fertility. This may be better explained by the assistance of the follow- ng table :

In one hundred pounds.	Soil f'rtile without manure.	Good wheat soil.	Bar-ren.
Organic matter,..........	9.7	7.0	4.0
Silica (sand,).............	64.8	74.3	74.8
Alumina (clay,)..........	5.7	5.5	9.1
Lime, ...	1.9	1.4	.4
Magnesia,....................	.9	.7	.1
Oxide of iron,.............	6.1	4.7	8.1
Oxide of Maganese,......	.1		.1
Potash, ...	.2	1.7	
Soda,..........................	.4	.7	
Chlorine,....................	.2	.1	
Sulphuric acid,............	.2	.1	
Phosphoric acid,..........	.4	.1½	
Carbonic acid,.............	4.0		
Loss during the analysis,	1.4	3.6½	.5
	100.0	100.0	100.0

The soil represented in the first column might still be fertile with less organic matter, or with a larger proportion of clay (alumina), and less sand (silica). This affect its *mechanical* character; but, if we look down the column, we notice that there are small quantities of lime, magnesia, and the other constituents of the ashes of plants (except ox. of manganese). It is not necessary that they should be present in the soil in the exact qantity named above, but *not one must be entirely absent, or greatly reduced in proportion.* By referring to the third column, we see that these ingredients are not all present, and the soil is barren. Even if it were supplied with all but one or two, potash and soda for instance, it could not support a crop without the assistance of manures containing these alkalies. The reason for this must be readily seen, as we have learned that no plant can arrive at maturity without the necessary supply of materials required in the formation of the ash, and these materials can be obtained only from the soil; consequently, when they do not exist there, it must be barren.

The inorganic part of soils has two distinct offices to perform. The clay and sand form a mass of material into which roots can penetrate, and thus plants are supported in their position. These parts also absorb heat, air and moisture to serve the purposes of growth. The minute portion of soil, which comprise the acids, alkalies, and neutrals, furnish plants with their ashes, and are the most necessary to the fertility of the soil.

Special Manures.

"Manures are the riches of the soil."—CHAPTAL.

The *stable manure* collected from the stalls of horses, is highly valued by all farmers. But the readiness with which it undergoes fermentation, and sends off ammonia, together with its abundant supply of soluble organic and mineral matter, makes it necessary to exercise care in its collection and preservation, so as to avoid loss.

The urine must be kept from running off. (1) This is sometimes done by keeping the horses on close plank floors, sloping backward from the trough. At the lower edge of the floor, a trench or gutter is so constructed as to receive the liquid. This trench is kept constantly supplied with some absorbent substance, such as dry peat, muck, or spentan, which will take up the fluid, and, during the subsequent decay, will fix the volatile part, and prevent its loss. A little gypsum strewed in the trench every day, would make the preservation of the ammonia more certain, and also add to the value of the manure. The trench should be cleaned out, and filled with a fresh supply of the absorbent very frequently. (2) Another method is to have a firm clay floor (which is better for the feet and legs of horses than a plank floor), and to keep it well supplied with litter of straw, leaves, muck, etc., which will absorb the liquid part of the manure. The wet portions of the litter should be removed every morning, and, as they are thrown out into the manure-shed, should have a little gypsum, humus, copperas-water, or other absorbent, sprinkled over them, to arrest the ammonia, which will begin to escape in a few hours.

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*These distinctions are not essential to be learned, but are often convenient.

It must never be forgotten by the farmer, that however well he may succeed in rendering the most valuable portion of his compost, or manure heaps *involatile*, it is still very *soluble*; and every rain which passes through the mass, carries off much of its value. The loss sustained on many of our farms, in two or three years, by exposure of manures to the influence of rain, would, if saved, be quite sufficient to cover the cost of a few sheds, which would shelter all the manures of the farm for twenty years or more.

The labor of collecting the manure from cattle-pens into sheds, is, perhaps, generally too great to make that an economical method of preserving it. Whenever this is the case, it should be hauled out and spread upon the soil, before it undergoes fermentation, and before its soluble ingredients have been washed away by the rain.

Excrements of cows, sheep and hogs require no less care for their proper preservation than those of horses. Similar means may be adopted. The urine of cows is not much inferior to that of horses in value. That of sheep is more valuable than either, while that of hogs, though abundant, is less valuable than any of those above mentioned, but still too important to be neglected. Of all domestic animals, the hog gives the most valuable solid excrement, which compensates for the want of value in his urine. The solid excrement of the sheep is next in value; then that of the horse stands next; while that of the cow is inferior to either. Still, all are sufficiently useful to be worth preserving.

Human Excrement requires special attention: (1) Because of its high fertilizing value; and, (2) Because of the little regard paid to it by the majority of families. When compared with the excrementary matter from other animals, that of man stand above all, except perhaps that of well-fed sheep and fowls. The urine has a much higher value than the fæces. "Very accurate analyses have shown that the amount of *urine* contains double the quantity of phosphoric acid, four times as much azotized [ammoniferous] substances, and six times as much alkaline salts, as the solid fæces. Hence, therefore, it follows that the former possesses a *far higher value* than the latter, and deserves to be most carefully collected. . . . .

"From the preceding observations it may be incidentally perceived what an immense capital is lost in large cities, where the greater proportion of urine runs into the sewers and drains."—*Stockhart.*

Arrangements may easily be made about every country dwelling for the careful collection and preservation of this valuable kind of fertilizing matter. The simplest methods are, to have, in the first place, a compost heap of vegetable mould, the scrapings of wood-yards, &c., at some convenient place, *under shelter*, upon which all the slop from chambers may be thrown. Let the heap receive occasionally a fresh layer of material, and a free application of gypsum. This will keep down all disagreeable odor. Then, in the construction of privies, let the vaults be above ground, large, and so arranged that they can be kept constantly charged with such absorbent substances as are used in the above compost heap. This should be renewed frequently, and what is removed from time to time be thrown upon the compost heap. A little diluted acid, copperas water, or gypsum, should be applied to the vaults frequently, to keep down unpleasant odors and preserve ammonia.

GUANO.—This fertilizer, which is now so extensively used, is the excrement of birds which feed chiefly upon fish, and have their habitations upon rocky, desolate islands and coasts. It has been stated that the urine of birds is solid. Guano, then, is a mixture of the urine and fæces of birds. From the quality of the food upon which these live, we would naturally expect to find in their excrements large quantities of ammoniferous compounds and phosphates. Analysis shows that these are the most abundant and most valuable ingredients of guano; while experience proves that the most valuable varieties are those which contain the largest per cent of salts of ammonia. The best guano is found in localities where rain seldom falls—where the ammonia salts have not been washed out. Parts of Peru, and the islands lying along the coast of that country, are seldom visited by rains. Here immense beds of guano, which must have required thousands, and probably tens of thousands of years for their accumulation, are found in great numbers. The deposits of guano are vast stores of ammonia, which a kind Providence has been treasuring up through many centuries for the use of man. While the rivers have been carrying off the ammonia from the land in vast quantities, either in solution or in the form of dead animals and insects, the seabirds have been bringing it back in the form of fish; and thus we have another of those compensating arrangements, by which the balances of nature are kept properly adjusted. The reader must be struck, too, with the analogy between these deposits of agricultural wealth, and the great deposits of mineral wealth laid up in past ages, in the extensive coal-beds found all over the world. In Peru and her adjacent islands, there are supposed to be many *millions of tons* of this rich fertilizer yet undisturbed. The African, Chilian, and Mexican guanoes are not so valuable as the Peruvian, because of their having been more exposed to rains.

The following table gives about the average composition of several varieties of guano.

In 100 parts of Guano are found

	Peruvian.	Chilian,	African.
Water	9	12	20
Salts of Ammonia and other organic matter	60	50	38
Phosphates	20	28	26
Salts of Soda and Potassa	5	6	10
Carbonate of Lime	4	2	3
Sand and Clay	2	2	3
	100	100	100

The ammonia of guano is combined chiefly with organic acids, such as the uric and humic, forming urate and humate o ammonia. These, by exposure to air and moisture, are gradually converted into the volatile carbonate of ammonia, the presence of which is readily perceived on opening a bag of Peruvian guano. Hence, if it is to be kept on hand for some time, a dry, close place is best for its security.

APPLICATION.—In applying a manure so costly as guano, the greatest economy should be carefully studied. All real economy in such cases, consists in such management as will realize the largest income from the least expenditure of money and labor. The economical use of guano demands, (1) the application of the smallest quantity required to accomplish the object in view; (2) such treatment of it as will secure it against loss, either before or after it is applied; (3) a judicious regard to the ultimate improvement of the soil.

The quantity varies with the quality of the soil, and the kind of crop. For wheat and corn, from 100 to 300 pounds per acre is generally a sufficient quantity; but every farmer should decide questions like this for his own soils, by numerous experiments. Small quantites may often be most economically used, by being mixed with other manures. This is especially the case where the guano is to be brought directly in contact with the seeds in the soil. But the labor of mixing thoroughly is, in many cases, greater than the advantages gained.

The most common method of applying guano to wheat, is to sow it upon the wheat, and harrow or plow both into the soil together; or, when the wheat is drilled, to drill the guano with it. To make such applications safe to the grain, very minute portions only must be allowed to come in contact with each separate grain of wheat. When applied in the hill with corn, cotton, potatoes, or any other crop, it is best to "dilute" it with other substances. The following general directions may be of use to guide the young farmer to successful experience.

As soon as the bags are opened, the lumps should be carefully pulverized by the use of any convenient instrument, such as a pestle with a broad base. To separate such parts as may not be fully reduced to powder, a sieve may be used. This should be done just before it is applied, so that it may not long be exposed. If the lumps are very hard, it is best to moisten them, and let them lie in a heap several days.*

When the guano is to be mixed with something else, some form of humus, or rich vegetable mould, serves well for this purpose. Spread a layer two inches deep, of moist mould, upon a floor of boards or earth, and over this a layer of guano half an inch or an inch thick, with a free sprinkling of plaster. Then add another layer of mould and another of guano and plaster, in the same order, until as much has been employed as is wanted for use. Fix the whole mass carefully with a shovel; or, if a more perfect mingling is desired, pass it through a coarse sieve. Such a mixture preserves the guano, and puts it in a good condition to be applied almost to any crop.

The effects of guano have been found to be more energetic, when it is dissolved in diluted sulphuric acid. About twelve or fifteen pounds of acid, and ten gallons of water, poured upon 100 pounds of Peruvian guano, would decompose the organic salts of ammonia, and form the sulphate of ammonia, which is a most energetic fertilizer; and, at the same time, another portion of the acid would so act upon the phosphate of lime present, as to convert it into the more soluble super-phosphate.

In whatever condition guano may be employed, it should be thoroughly incorporated with the soil. This will tend to preserve its ammonia, and will so distribute its particles, that some of them will be found by the roots of the crop in every part of the soil.

ACTION OF GUANO.—Some farmers say that guano, while it produces fine crops for a few years, ultimately exhausts the soil.—In the opinion of many, this results from a kind of stimulating influence which it produces upon plants, causing in them a kind of artificial or forced growth, by which they take away from the soil more fertilizing matter than the guano has brought into it. This influence has been compared to the influence of alcohol on the human system. But, as guano contains nothing which is not an appropriate article of nutrition for plants (real food), such a comparison is rather absurd. It has also been satisfactorily shown, that an ordinary application of guano gives more mineral matter to the soil than the resulting crop takes away,* at least so far as some of the mineral ingredients are concerned. But when we remember that guano continues its influence through several successive crops, the quantity of some of the mineral substances of the soil may, in the meantime, be diminished more than they have been previously increased by the guano. This is especially true of potasa, lime, and sulphuric acid. In such cases, the long continued application of guano to some soils may exhaust their supply of mineral fertilizers, at least the supply of those in the proper condition to be taken up by the roots of plants.

The long-continued application of guano exhausts the *humus* of the soil. While guano has an excess of ammonia, it has but little humiferous matter in it; and, while the caustic character of the ammonia hastens the decomposition of humus already present, the loss is not made up from the guano. But if we mix with it *leached ashes*, *plaster*, and *humus*, there can be but little danger of injury ever resulting from its application; while a corresponding improvement will be the general reward.

The best method of using guano for the permanent improvement of soils, is to employ it in connection with green manures. It greatly increases the growth of clover peas, &c.; and when these crops are plowe down, they not only carry back with the the mineral matter of the guano, but ad largely to the supply of humus and ammonia in the soil. The guano thus has th power of causing plants to convert the cabonic acid and water of the air and soil int humiferous compounds, much more rapidly than they would have done if the guano had not been applied. It also cause the same plants to thrust their roots mor deeply into the subsoil, and thus bring u an increased supply of mineral matter i the proper condition to feed succeedin crops.

A great deal of swindling has been practised in the sale of guano. The best safe

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*A convenient method of moistening the lumps, is to dip the unopened bags into a large tub of *hot water* for 5 or 10 minutes, and then lay them up in piles, or stacks, for two or three days, till they are thoroughly penetrated by the moisture, and incipient fermentation takes place. This will relax the lumps completely.

* See Dr. P. B. Pendleton's "Essay on Guano —Proceedings of Virginia State Agricultural Sccety, Vol. III., p. 39.

guard against being imposed upon, is to buy only from *reliable men*, regularly engaged in the business of selling it. But in case the quality is suspected, one or two simple tests may be useful in removing or confirming suspicions. *Exps.*—Burn 100 grs. to ashes in a crucible, or iron spoon. The remaining ashes should not weigh more than from 35 to 45 grs., and should be nearly all soluble in dilute muriatic acid 2. Rub a little of the guano with a few grains of freshly-slacked lime, and if a strong odor of ammonia is not given off, the quality is not good.

Domestic Guano may be collected about hen-roosts, and, although not equal in value to the same weight of the Peruvian, it is still the most powerful fertilizer produced upon our farms. It should be carefully collected, and treated in the same way as guano.

ANIMAL COMPOUNDS.—The refuse of slaughter-houses and fisheries consists of blood, entrails, hair and other animal compounds, all of which contain the elements of ammonia in large quantities, and also a considerableamount of soluble mineral salts. Hence they possess a high agricultural value. They should be mixed with humus, and kept under shelter till they can be applied to the soil. If an animal dies on the farm, it may be made less offensive by being buried in a mass of humus and clay, which will soon be highly charged with ammonia from the decaying animal, and will serve to enrich some poor spot on an adjacent field.

Fish are caught in many places, and used for manure. They soon decay, and set free ammonia abundantly.

Insects of various kinds make their habitations in the soil. By eating vegetable substances, they help to collect and concentrate the ammoniferous portions of their food; and when they die, their remains add something to the fertility of ground in which they are buried.

Bones yield ammonia by the decay of their gelatinous substance, which makes them a valuable source of this important element of fertility. We have also learned that their mineral part is chiefly phosphate of lime, which is well adapted to almost all ordinary crops.

Value.—Bone, when dried and ground to powder without burning, are inferior only to good guano, in agricultural value. They yield about *half* as much ammonia, about *twice* as much phosphoric acid, and about *three times* as much lime. Hence, their value in the form of bone-dust is more than half that of guano.

When applied *alone*, their effect is much slower than that of the guano, but much more durable. This is owing to the fact that the gelatine undergoes decay more slowly than the ammonia salts in guano.—In fact, the ammonia of the latter is already, to a large extent, ready to afford food for the plant, while the ammonia of the former is yet to be generated from the decaying gelatine. The phosphate of lime, too, seems to require *time* to adapt it to the nutrition of crops.

If bone-dust is treated with an excess of sulphuric acid, the phosphate gives up a portion of its lime to the acid, forming sulphate of lime, and a superphosphate of lime is thus left, which is much more soluble than the ordinary bone-earth, and is hence a much more energetic fertilizer.—The gelatine of the bones is at the same time reduced to a pulpy mass, which soon undergoes decay in the soil, and generates ammonia. While the gelatine is not injured, the phosphate is greatly improved by being thus treated.

PREPARATION.—"To every 100 pounds of bones, about 50 or 60 of acid are taken; if *bone-dust* is used, from 25 to 45 pounds of acid are sufficient. The acid must be with two or three times its bulk of water, because if applied strong it would only burn and blacken the bones, without dissolving them.

The bones are placed in a tub, and a portion of the previously-diluted acid poured upon them. After standing a day, another portion of acid may be poured on; and finally, the last on the third day, if they are not already dissolved. The mass should be often stirred."

Another good way is to place the bones in a heap, on any convenient floor, and pour a portion of the acid upon them.—After standing a day, the heap should be thoroughly mixed, and a little more acid added: this is to be continued so long as necessary. It is a method which I have known to prove very successful. . . . .

APPLICATION.—"A convenient meth

od, in most cases, is to thoroughly mix the pasty mass of dissolved bones with a large quantity of ashes, peat-earth, sawdust, or charcoal dust. It can then be sown by hand, or dropped from a drill-machine.—Two or three bushels of these dissolved bones, with half the usual quantity of yard manure, are sufficient for an acre."—*Norton.*

Some who have tried this method, contend that it will not succeed well, unless the bones are first broken into fragments, then boiled in water—the sulphuric acid being added while the water is still hot.—The bones and boiling water must be thrown together into a large wooden vessel before the acid is added, as the acid would rapid-corrode the kettles used in the boiling process.*

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* "TO DISSOLVE BONES.—If no mills are accessible, bones may be dissolved in sulphuric acid. For 100 pounds of bones take about 30 pounds of acid (2 gallons), and mix with it say 33 pounds of water (4 gallons). First put the water into a strong wooden-hooped cask or barrel, and add the acid slowly, stirring it, as added, with a stick. Crack the bones or not, as may be convenient, and put them in and above the fluid.—Punch them down, and stir them occasionally with a stick. Let them stand four, six, or eight weeks, until softened and mostly dissolved. Many assert that they cannot dissolve whole bones, but *they do not take time enough.* From repeated trials, we know they *will* dissolve. The time will depend upon the dryness of the bones, and their freedom from fat. After standing two months, more or less, mix the mass thoroughly with six or eight times, or more, its bulk of muck, or even with common soil, if need be. This makes an excellent fertilizer, worth anywhere all it costs, and more. Sulphuric acid, in carboys of 120 to 160 pounds, costs from 2 to 3 cents per pound, according to distance from the manufactory. It needs to be handled with care, as it is corrosive to the flesh and clothing."

American Agriculturist.

On the effects of cropping upon the soil, in connection with special Manuring.

In view of these facts, we are now better prepared to consider the effect that cropping has upon the soil. Suppose in the first place that, as is too often the case, wheat or any other grain has been grown upon a new soil crop after crop, and nothing returned in the shape of manure; the yield may be good for a number of years, but then it begins to grow less and less; what is the reason of this? It is, probably, that the *phosphates* are nearly exhausted: these were not so abundant as many other substances at the commencement but more of them than of anything else has been taken away. Second, suppose that the farmer has sold all of his grain, but has been very careful to return the straw as manure: he does not see why the land should run down, and in fact it does not so quickly now as in the first case; still, after a time, it also begins to show marks of exhaustion. In straw, he has returned chiefly silica to the soil; it is, however, chiefly phosphoric acid that the grain has taken away, and that he has been selling off.

The same thing would result from exclusive cultivation of any of the other grains. Some soils bear this severe treatment longer than others, but there are very few that would not eventually become exhausted. If turnips or potatoes alone were grown, the loss would be of another description, but equally injurious. In this case, instead of phosphoric acid, it is potash and soda that are exhausted, and no amount of phosphoric acid would make good the deficiency. In the case of trees, the demand would more probably be for lime.

The general rule may from all of these facts be considered as established, that cropping tends directly to impoverish the soil. We see that silica, alumina, iron, and organic matter, in these soils amount to at least 90 lbs. of every 100. In many soils they come up to at least 95 lbs. There is no fear, then, of exhausting the silica; alumina, as has been said, does not enter into the composition of plants, and iron is not usually a prominent constituent. The leading parts of the ash from the grain, the roots, and all of those portions of plants most valuable for food, are found not in the 90 to 95 lbs. made up by these abundant substances, but in th 5 or 10 lbs. necessary to make out the hundred. The quantities of these important substances contained in most soils are therefore small; and hence as they are the very ones most largely carried away, some one of them is usually first exhausted, according to the class of crops that have been chiefly cultivated.

When one is gone, or reduced to a very small quantity, the crops which particularly require that substance will refuse to grow luxuriantly and to yield well: suppose it to be wheat, and the wanting substance of every other necessary constituent, and yet all of their good effects are more than neutralized by this one defect. By attending to such points as these, the farmer may often save himself much disappointment and expense. He may put on load after load of ordinary manure, and still not produce the desired improvement; when at the same time a bushel or two of some particular ingredient, at one-twentieth of the cost, may have been all that the land wanted.

In this way we can explain the wonderful effect often produced by a few bushels of lime, or of plaster. These were just the substances which were deficient in those soils where they proved so efficacious; being suplied, the soils at once became fertile. Where they produce no change, as is the case in many situations, it is because there is already a sufficient supply present; because some other substances beside these are also wanting; because the land is too wet, or is otherwise faulty in its physical character; or because injurious compounds are so largely present, as to be fatal to the healthy growth of plants.

It is not uncommon for land to be brought up at once by adding a small quantity of plaster, and the application repeated yearly afterward seems to be all that is necessary. This seeming facility of fertilizing his soil, is apt to lead the farmer into a great mistake. He finds that he can obtain heavy crops each year by using a few bushels of plaster or lime, and is tempted to depend almost entirely upon so easy and so cheap a manure, to the neglect of all others. After a time, however, his crops begin to diminish again: he tries increasing the plaster or the lime, but with no renewal of the former effect; he finally resorts to common manure again, but with not even so much success as he formerly had; the land is impoverished beyond anything he has ever known.—Thus in some parts of England it has passed into a proverb,

> "Lime enriches the fathers, but impoverishes the sons;"

the idea being that the improvement at first is remarkable, but that in the end the land is ruined. Is the blame in such cases to be laid upon either the lime or the plaster? Let us reason a moment upon the facts of the case.

Here was a soil well supplied with all of the substances necessary to a good soil excepting, by way of example, sulphuric acid and lime (plaster of paris). The farmer adds plaster, which at once supplies the deficiency, and the land produces heavy crops; he adds it the second year with perhaps even increased effect, and so on year after year, until there is as much as is necessary in the soil. Now what is the reason that after a time the crops begin to decrease? There is an abundance of plaster, but may there not be a deficiency of something else? He has been constantly taking off large crops, and carrying them away from the land, with a variety of inorganic substances contained in them. As the crops have been larger than ever before, so the quantities of phosphoric acid, chlorine, magnesia, potash, soda, etc. taken off, have been correspondingly great. How has this constant drain upon the stock of these substances in the soil been met? Why by a constant supply of plaster, that is, of sulphuric acid and lime. At last one or more of them are exhausted; and how is the loss made up? Still by an increased supply of plaster; and because this plaster no longer does any good, it is said that the land has been ruined by its injurious influence.

From the foregoing explanation, we may easily perceive that it is no longer plaster which the land requires, but perhaps phosphoric acid, potash, magnesia, or some of the other constituents of a fertile soil.—They have been taken away, and nothing brought back but plaster; and now that they are exhausted, hundreds of tons of plaster would not make good their loss. It is then the false practice of the farmer, and not the plaster, that has so greatly injured his land. The rule becomes clear and imperative, that every one who uses such special manures to make good a special deficiency, should at the same time keep up the general stock by a liberal use of ordinary manure.

* * *

Lime Water for Apple Trees.—A French journal relates of a lanned proprietor near Yvetot, that he had in his garden some old apple trees which produced no fruit. Two winters ago he took up some lime, which he streeped in water, and with a brush wash the old trees all over. The result was the destruction of all the insects; the old bark fell off, and was replaced by new, and the trees bore an excellent crop.

From the Rpeort of P. T. Tyson, Esq., State Chemist, to the Legislature of Maryland.

On Guano.

Maryland was the pioneer State in the use of guano in this country. According to my recollection, the first trial of it in the State was by Captain Abel S. Dungan, of a few bags brought by him from Peru, and applied to part of his corn crop. This, I think, was about the year 1832, and soon after the importation of it by the cargo was commenced.

The good effects of this manure upon exhausted soils, brought it rapidly into use, and the high price it reached, induced enterprising persons to search for it, especially upon those small coral islands whose only inhabitants are birds. The results of this activity brought into notice the various kinds of guano now sold by the dealers.

All of those that can be had in considerable quantity, are sold in Baltimore, which continues to be the leading guano market in this country.

In estimating the value of any guano to the farmer, we may disregard all its constituents except ammonia and phosphoric acid. The value of some of them depends principally upon their large proportion of ammonia. Others containing no ammonia, are valuable for their phosphoric acid alone. There are some again which contain available proportions of both of these matters so important to the farmer.

We may therefore divide the guanoes now accessible to our agriculturists into three genera or groups.

1.—AMMONIATED GUANO.

The only species of this kind is Peruvian guano, containing from 7 to 18 per cent. of ammonia.

2.—PHOSPHATIC GUANO,

Containing phosphoric acid equal to from 16 to 90 per cent. of phosphate of lime.—Of this, the species recognized in the official advertisements of the State Inspector of Guano are—Mexican, Colombian, Sombrero, White Mexican, Brown Colombian, or Nevassa.

3.—AMMONIA-PHOSPHATIC GUANO.

California, containing from 3½ to 10 per cent ammonia, with equally varying proportions of phosphate of lime, or its equivalent in phosphoric acid.

African, containing variable quantitie of ammonia and phosphate of lime.

Before further considering these guanos I beg leave to present a number of result of analysis by different eminent chemists

The first series are selected from a larg number of analysis from my friend, Dr Piggot, and are contained in the followin communication with which he has favore me. There is also one included by m friend Dr. C. Morfit, formerly of Baltimore but now residing in New York :

BALTIMORE, Dec. 16, 1859.

P. T. Tyson, Esq., State Agricultur Chemist:

DEAR SIR:—In reply to your inquirie concerning the results of my examinatio of the different guanoes brought to thi market, I submit the following statement

1.—BROWN MEXICAN GUANO.

These guanos have evidently been formed from the excrements of birds which hav lost their ammoniacal salts by evaporatio in the hot sun, and by solution in th heavy rains that fall in the region fron which they are obtained. The small island called "Keys," upon which they are found have often an indistinct basin shape, inclining in every direction towards the centre. In consequence of this form, much o the guano is washed during the rain int hollows where it is gathered.

The color of this guano varies from a pal fawn-yellow to a deep chocolate brown, th difference appearing to be due to the varying quantities of humus present in th different varieties. All the genuine lim guanos, no matter how dark they may be leave a pure white ash if thoroughly burned, which sufficiently establishes the organic nature of the coloring matter. I hav been told by sea-captains who have brough in this dark guano, that it was collecte among the thickets of bay cedars which ar found upon many of the islands of th Caribbean sea. Most of these brown guanoes also contain notable quantities o fibrous roots, another evidence of the origin of their color. There are, however dark colored soft guanoes, which owe thei tint to the large mixture of iron amon them. These contain little or no lime, being made up almost entirely of phosphat of iron. Their contents are variable, es pecially in the proportion of phosphoric acid, as will be seen by the analysis which I shall presently quote. The following tables will give an idea of the constitution of this article:

	I.	II.	III.	IV.	V.
Water,	32.51	29.28	24.89	13.11	[illegible].98
Organic matter,	9.35	12.53	20.93	35.49	11.06
Sand,	0.66	0.21	0.12	1.09	trace
Lime,	28.56	28.21	26.89	20.86	36.78
Magnesia,	....	....	....	4.85	....
Phosphoric acid,	16.32	16.68	24.34	16.16	31.22
Chlorine,	....	....	....	2.25	....
Carbonic acid and other ing-'dts not estimated,	12.60	13.09	2.84	6.19	3.96
Equivalent of phosph'ic acid in bone phos. of lime,	35.36	36.14	52.74	67.64	67.64

Of the above, No. I. presents a cargo imported in August, 1854; No. II. the cargo of the "Susan," which came in the following September; No. III. the cargo of the "Mary," imported in 1855; No. IV. is a sample of a deposit examined to determine its value, and No. V. is the sample of a cargo, imported in 1855, and marked, by the inspector, "Brown Mexican AA," but owing its richness to the presence of lumps of Colombian guano intermixed with it. Of the dark iron guanoes, the following, a sample from a small cluster of islands near the South American coast, called the "Brothers,'' may be taken as an example.

Water,	16.06
Organic matter,	22.92
Sand,	11.68
Phosphate of lime,	9.01
" " Magnesia,	2.86
" " iron,	27.19
Carbonate of lime,	5,95
Not estimated,	2.33
	100.06

Some of these ferruginous guanos contain not a trace of lime or magnesia, others are remarkable for the presence of considerable quantities of sulphate of lime or gypsum.

[Dr. P. here gives the analysis of various kinds of guanoes, which are placed under this head; but remarks that the term "Mexican Guano," is not strictly applicable to all the different varieties described.]

WHITE MEXICAN GUANO.—This title was originally given to a very light colored guano, consisting chiefly of porus lumps of low specific gravity, but it has since been applied to all guanoes that exceed sixty-five per cent. of bone phosphate of lime, which is the highest standard of Brown Mexican. The most characteristic specimens of this variety are those which were formerly brought from Pedro Keys, and the following analysis, made of a lump selected by myself from one of the cargoes, will give a good idea of its composition:

Water,	3,80
Organic matter,	7.10
Lime,	43.91
Magnesia,	trace
Alkaline salts,	0.71
Phosphoric Acid,	37.13
Sulphuric Acid,	trace
Chlorine,	trace
Sand,	0.11
Iron, alumina, and other substances not estimated,	7.25
	10000.

The calculated amount of bone phosphate of lime 80.53, is so near the sum of the lime and phosphoric acid (81.03) that the guano may be considered a phosphate of lime containing a few impurities.

This analysis, however, must not be supposed to represent the value of actual cargoes of this article. Very few of them reach so high a grade; the average per cent. of those I have analyzed, usually varying between 65 and 75 of bone phosphate. Many the guanoes recently brought in and sold of under this name, are, in reality, common soft guano mixed with fragments of hard guano, which raises their per centage as in the case I have cited in analysis No. 1.

COLOMBIA GUANO.—[Dr. P., after alluding to the errors into which several chemists fell in reference to this guano, when offered for sale here, in 1855, gives the following table as expressing the results of his investigation:]

Moisture,	2.34
Organic matter and water combined,	895
Phosphate of iron,	0.35
Phosphate of Magnesia,	0.61
Lime,	38.75
Phosphoric acid,	46.22
Sulphuric acid,	1.96
Chlorine,	free
Sand,	0.63
	100.81

Upon calculating the results, some lime will be found over and above the exact amount for the neutral phosphate. This I take to be combined with one of the acids of the humic group, because the substance effervesces with acids after ignition, but not in its original condition. I believe the following table correctly expresses its composition :

Neutral phosphate of lime,	87.95
Sulphate of lime,	4.21
Lime combined with organic matter,	1.47
Organic matter,	2.29
Phosphate of iron,	0.35
Phosphate of magnesia,	0.61
Chlorine,	trace
Sand,	0.63
Moisture,	2.34
	100.85
The phosphoric acid is equivalent to bone phosphate of lime,	100.14

The cargoes of this guano do not come up to the samples, because they contain a large proportion of the rocks of the islands. Still, they furnish the largest amount of phosphoric acid in a given weight of material, and that, too, in a remarkable soluble form. The only difficulty is, that this variety is scarce.

SOMBRERO GUANO.—This guano is the most abundant and uniform source of phosphoric acid now known to commerce. It is incorrectly called a guano, as it has evidently not originated from the excrements of birds, but is clearly a submarine deposit. I am inclined to think, that it is made up of the bones of marine animals, and the excrements of fish and mollusca that feed among the coral reefs. It is composed of phosphate of lime, mixed with some carbonate of that earth, as well as the phosphates of magnesia, iron and ammonia. It contains a very small quantity of sand and not much organic matter. It is quarried like a rock, and requires to be ground before it is applied to the soil.

The following analysis will show its constitution and exhibit its remarkable uniformity. They are all cargo samples, Nos. I. and II. having been imported in this market in the fall, 1858, No. III. being the sample of a cargo taken by the purchasers as it ran through the mill at Petersburg, Va., in the spring of this year :

	I.	II.	III
Water and organic matter,	7.07	7.07	12.27
Lime,	44.60	41.52	40.27
Magnesia,	1.56	0.35	1.07
Allumina,	4.97	4.13	4.67
Sesquioxid of iron,	2.03	4.97	
Alkalies,	0.81	0.81	
Phosphoric acid,	34.65	36.80	35·52
Chlorine,	0.35	0.35	
Carbonic acid,	2.80	2.92	
Sand,	0.69	0.69	0.51
Not estimated,			
	99.50	99.59	100.00
Phosphoric acid equivalent to bone phosphate of lime,	75.04	79.73	77.75

NEVASSA GUANO.—This material is in small red pebbles usually rounded, resembling gravel. I have made but a single full examination of a sample, which gave,

Organic matter and water with some carbonic acid,	12.72
Sand,	4.11
Lime,	29.66
Alumina and Sesquioxid of iron with a little magnesia,	21.50
Phosphoric acid,	31.66
	99.60

Phosphoric acid equivalent to bone phosphate of lime, 68.49. The sample from which the above analysis was made was perfectly dry.

IRON GUANO.—Early in 1857, a large number of rocks, supposed to be identical with the Colombian guano already described, were brought into the United States, mainly through the ports of Baltimore, Philadelphia and New York. I never saw any reason to consider them guanoes, they being chiefly composed of Wavellite, mixed with variable quantities of phosphate and Sesquioxid of iron. The following table expresses their composition. No. 1, is a pale phosphate from Pestigos ; No. 2, a red rock, from the same island :

	1.	2.
Water,	21.05	16.74
Sesquioxid of iron,	4.85	12.96
Allumina,	22.11	20.91
Soluble matter,	17.55	7.74
Phosphoric acid,	33.66	40.45
Sulphuric acid,		02
Chlorine,		12
Phosphoric acid equivalent to bone phosphate of lime,	72.91	87.58

Both the samples contained fluorine, which was not estimated. These phosphates were deemed here as worthless, because they had not a lime base. I never could see any good reason for this opinion, es-

ecially, as I proved by actual experiment,
at their phosphoric acid was rapidly dis-
lved by the alkaline silicates, which are
course present in every soil capable of
oducing wheat or corn.

El Monita Guano.—Several samples
hard guano have been recently brought
from the island of El Monita. They
mewhat resemble genuine Colombian gu-
no in their external surface, which is
hite, smooth and mammillated, but differ
om it in their general structure, which is
aly, so that they readily split up parallel
yers. They appear to contain a mixture
the two phosphates of lime in varying
roportions. The amount of sulphate of
me differs greatly in different samples.—
nd this difference causes a fluctuation in
e per centage of phosphoric acid. The
llowing table expresses the composition
the first sample which I examined :

Water and organic matter,	12.28
Sand,	0.86
Lime,	35.06
Magnesia,	2.99
Phosphoric acid,	27.78
Sulphuric acid,	17.61
Not estimated,	3.79
	100.00

I suppose these substances to be com-
ined as follows:

Mixed phosphate of lime,	46.18
Phosphate of Magnesia,	8.65
Sulphate of lime,	35.41
Sand,	0.86
Organic matter,	5.11
Not estimated,	3.79
	100.00

Equivalent of phosphoric acid in bone
hosphate of lime—60.17.

That these proportions vary materially,
ill be perceived, when I state, that another
ample of a similar rock from the same
hooner, and examined for phosphoric acid
nd lime, contained of

Lime,	83.75
Phosphoric acid, in the hundred parts,	42.83

Equivalent of phosphoric acid in bone
hosphate oflime—9.802.

Of the ammoniated guanoes I have not
ade so many analysis as of the phosphat-
. I am convinced, however, that the
ssumed uniformity of Peruvian guano, as imported here, does not rest upon a basis of fact. I have analyzed one sample which contained 18.53 per cent. of ammonia.—The last sample I examined gave me only 11.40 per cent. of ammonia, and it certainly presented no appearance of having been damaged on the voyage.

California Guano. There have been various articles brought in under this name. Usually they are very wet and dark colored, when of course their per centage of ammonia is low. The following table expresses the results of my analysis of the first cargo brought to this port, and probably represents the average composition of this material.

Moisture,	15.63
Combined water, organic matter, and ammoniacal salts,	51.04
(Containing of ammonia 6.35)	
Lime,	6.11
Phosphoric acid,	12.91
Sand and gravel,	3.68
Not estimated,	11.63
	100.00

An examination for ammonia of a sample recently sent me, gave me only 3.46 per cent. of that alkali.

Another sample, which I received about two months since, and of which I made a commercial analysis, gave me the following results.

Water and organic matter,	38.45
(Containing of ammonia 6.35.)	
Sand and gravel,	16.10
Lime,	15.55
Phosphate of magnesia,	4.61
Phosphoric acid,	16.29
Not estimated,	9.00
	100.00

I have examined other ammoniated guanoes from Yucatan, Africa, Patagonia, the Galapagos Islands, and other points chiefly in the Pacific Ocean, but as they are not articles of commerce here, I shall not trouble you with a description of them.

Very respectfully, yours, etc.,
A. SNOWDEN PIGGOT.

I also avail myself of some of the analysis of Prof. S. W. Johnson, the results of which are just published under the title of "Peat, Muck, and Commercial manures."

1.—PERUVIAN GUANO.

Analysis of four samples.

	1.	2.	3.	4.
Water,.......................... }	66.32	65.18	12.63	15.70
Organic matter, ... }			52.27	51.46
*Ammonia potential,.........	5.82	5.95	18.03	15.98
" actual,.............	8.93	9.08		
Phos. acid, soluble in water,	4.68	3.64	15.19	14.08
" insoluble do	10.05	10.50		
Sand, etc.........................	1.69	1.52	2.45	2.66
Phos. of lime equivalent to the total phosphoric acid,	av'ge	21.28		31.69

[*By the term "potential" ammonia, Prof.—Johnson means that which will be produced by further chemical changes, in addition to that already existing.]

CALIFORNIA GUANO, (*Elide Island.*)—In Prof. Johnson's book are recorded four analysis. Nos. 1 and 2 by himself, 3 by Dr. David Stewart, of Annapolis, and No. 4 by Dr. Deck, of New York.

	1.	2.	3.	4.
Water, ...	27.34	27.60	18.90	22.64
Org'c and volatile matter,	39.20	38.75	43.30	43.53
Ammonia,.........................	10.00	10.06	9.39	11.46
Phosphoric acid (soluble,)	5.07	5.31	11	
" (insoluble,	6.66	6.25		
Sulphuric acid,	4.94	4.94		
Lime, ...	9.67	9.30		
Potash and a little soda,....	2.50	2.50	9.60	
Sand, etc.,........................	2.50	2.52	4.70	3.24

It appears that the adulteration of guanoes, especially the Peruvian, is very extensively practiced in Great Britain, and I regret to be obliged to believe the frauds of this kind, are also perpetrated in our own country.

In order to protect our farmers against such impositions, the system of inspection of guano was instituted in our State, and it has doubtless been a means of protection to a considerable extent. But yet, it appears from the testimony of many farmers, that they have had palmed upon them, sometimes, inferior or adulterated guano, with the inspector's mark upon the bags. Gentlemen have informed me, that boatmen who have brought them Peruvian guano, have offered to furnish them with good new bags, for the guano bags containing the inspector's mark! Suspecting, however, that they were wanted for dishonest uses, they refused to part with them.

There is a peculiar earth on the southern slope of Hampstead Hill, near the eastern limits of Baltimore, of which I have been informed, large quantities have been, and may still continue to be secretly carted int the city. There being no conceivabl honest use for which this material can b brought into the city, and it being ver similar in color to Peruvian guano, it wa reported to be used to adulterate that article, the mixture being put up and sold i guano bags containing the inspector' mark! Some months since, the inspecto called the attention of the police to th affair, who arrested parties carting awa this earth in guano bags during the nigh The arrest was evidently made at an injudicious time, because upon examination th bags were found to contain only the earth If, however, the parties had been watche until they had taken it to their mixing depot, and completed the crime, they migh *possibly* have been properly punished.

During the late season of active fiel work, I endeavored to collect for examination, samples of guano, ground bones, an artificial fertilizers, which had been purchased and received by my farming friends Finding but few kinds in their possession requested that samples might be forwarde me whenever they shall again purchase.

Among others I got in person a sampl of guano from Col. Jno. S. Sellman, o Anne Arundel Co., which being sold fo Mexican AA, should have contained phosphoric acid equal to 55 per cent. or mor of phosphate of lime, and yet the analysi showed but 36 per cent. In this case th Colonel paid for 50 per cent. more phosphate of lime than was implied in the purchase, and if the deficiency had not bee discovered, he would have suffered a stil greater loss by not applying a proper dos of the phosphate to his soil. How much of this guano was sold and used by farmers, I have no means of knowing.

Samples of other guanoes and fertilizers have recently been received and are unde examination.

In using an ammoniated guano we should always mix with it a portion of ground plaster, in order to prevent the escape o the ammonia or its carbonate.

I may add, also, that the experience o those who have several times applied Peruvian guano to the same field, has generally shown that after the second or third application it produces little or no good result unless other manures are also applied. I England the same effects have been observed.

This had been attributed to the large oportion of ready made ammonia, which nds to promote a vigorous growth of op, and thus rapidly abstracts the essen- l constituents of the soil, including its osphoric acid. It is for this reason that etter permanent effect results from mix- res of Peruvian and phosphatic guanoes an from the former, when applied alone.

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lt as a Preventive of Black Fire or Rot in Tobacco.

Mr. Editor—Doubtless most, if not all, no have cultivated tobacco, have observed, rmed on the stems of the leaf, a salt, sely resembling saltpetre, and generally called. From frequent observation the iter came to the conclusion that the ripest d richest leaves were most disposed to row out this salt—conceiving this idea, sought to ascertain its truth as far as acticable, by inquiring of experienced anters. Tne result has been a full con- tion of its truth. This, again, suggest. the idea that the climination of the salt ght be immediately connected with the aturation of the plant, and that, as a consequence, whatever would furnish material the formation of this salt, would encour- e the ripening and enrich the plant.— rther investigation led to the conception. at the black fire, or rot, the disease so en disappointing the sanguine expecta- ons of the planter, was the result of the ndition of the plant directly antagonistic maturation, and if so, that whatever uld encourage and hasten the process of ening, would prevent the disease. In- iries as to the truth of this supposition ve confirmed the hypothesis and fixed conclusion, that a want of the material form this salt constitutes the cause of the ease, and that furnishing the material or ments, would be a safeguard against its vages. Since arriving at this conclusion, d before he had made experiments to test truth of the theory, by the suggestion a friend, he was induced to use ground im salt, with peruvian guano, as a prep- ation for tobacco, merely to cheapen the nure, two parts of the guano with one the salt being regarded as equal to all ano as a fertilizer, which he has found to true. Since using this mixture he has und that he has had no black fire. The last season, which was very favourable to produce this disease, he saw but one or two plants fired in his whole crop. This led to inquiries of his neighboring planters, which resulted as follows:

Mr. M., crop 150,000—land peculiarly liable to fire—whole crop salted except about 30,000 new land—no fire on the old land to attract notice—part of the new fired badly. Mr. C., crop about 250,000—land much less liable to fire than Mr. M.'s—used no salt—fired very badly, and forced to cut prematurely to save from fire. Col. G., about 200,000–no salt–-fired badly. Capt. B., about 200,000—no salt—last cutting began to fire rapidly. Mr. H., about 250,000—200,000 salted—no fire—45,000—guano without salt—fired considerably—5,000 new land—no manure—fired very badly. Mr. B., the friend at whose suggestion the writer was first induced to use salt, says he had not thought of its being a preventive of the fire, but upon reflection recollects that whereas he occasionally had the fire before using the salt, he has had none since. In view of these facts, the writer regards the conclusion legitimate, that ground alum salt is a preventive against the black fire, or rot.

Perhaps the maximum to the acre should not exceed a bushel. This seems to be the opinion of most who have used it, fearing that a more liberal dose may render it more difficult to secure a good stand. Without question it may be advantageously applied during the cultivation, alone or mixed with guano or the phosphates, and possibly with even better effect.

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From the Southern Planter.

More about Salt as a Preventive of Black Fire or Rot in Tobacco.

F. G. Ruffin, Esq.—*Dear Sir:*—You ask my experience in the use of salt as a preventive of fire in tobacco. I have used it for two years, at the rate of from one and a half to two bushels per acre—applied broadcast at the time of hilling.—The first year I applied it only to a portion of my crop, and was so well satisfied of its value that I intended using it upon the whole crop last year. My supply, however, did not hold out, and I left a few thousand hills unsalted. This, as was the case with all the crops in my neighborhood, suffered much from firing, while the salted portion of my crop escaped almost unharmed.—My protracted absence from home prevented my observing the effects of this application as closely as I otherwise would have done, but my overseer and neighbors testify to the efficacy of salt as a preventive of fire; and the condition of my crop now coming in market is stronger evidence still in its favor. Yours truly,

R. W. N. ROWLAND.

Rox, March 21, 1860.

* * *

Advantage of Pulverizing the Soil.

The effects of pulverization or stirring the soil are numerous:

1. It gives free scope to the roots of vegetables, and they become more fibrous in a loose than in a hard soil, by which the mouths or pores become more numerous, and such food as is in the soil has a better chance of being sought after and taken up by them.

2. It admits the atmospheric air to the spongioles of the roots—without which no plant can make a healthy growth.

3. It increases the capillary attraction or sponge-like property of soils, by which their humidity is rendered more uniform; and in a hot season it increases the deposite of dew, and admits it to the roots.

4. It increases the temperature of the soil in the spring, by admitting the warm air and tepid rain.

5. It increases the supply of organic food. The atmosphere contains carbonic acid, ammonia, and nitric acid—all most powerful fertilizers and solvents. A loose soil attracts and condenses them. Rain and dew, also, contain them. And when these fertilizing gases are carried into the soil by rain water, they are absorbed and retained by the soil, for the use of plants. On the other hand, if the soil is hard, the water runs off the surface, and instead of leaving these gasses in the soil, carries off some of the best portions of the soil with it. Thus, what might be a benefit becomes an injury.

6. By means of pulverization, a portion of the atmospheric air is buried in the soil, and it is supposed that ammonia and nitric acid are formed by the mutual decomposition of this air and the moisture of the soil—heat also being evolved by the changes.

7. Pulverization of the surface of soils serve to retain the moisture in subsoil, and to prevent it from being penetrated by heat from a warmer, as well as from radiating its heat to a colder atmospher than itself. These effects are produced by the porosity of the pulverized stratum, which acts as a mulch, especially on heavy soils.

8. Pulverization, also, as the combined effect several of the preceding causes, accelerates the decomposition of the organi matter in the soil, and the disintegratio of the mineral matter; and thus prepare the inert matter of the soil for assimilatio by the plants.—*Genesee Farmer.*

* * *

We have seen a thousand and one prescriptions for the destruction of the Peach borer, many of which we have tried (under the impression that this enemy of ou best fruit would be utterly annihilated) i vain. We have great faith in the follo ing; hope our planters will try it and hav the charity to give the result of their e periments.—Ed.

To Kill Worms in Peach-Tree Root Take a small hoe, or other suitable imple ment, and excavate the earth from the root of the tree to the depth that the worm usually penetrate. Then take about pound of unslaked lime, broken into sma fragments; mix it with the earth remove from the tree root, and pack the mixtu into the excavation around the tree; the pour water upon the mixture in sufficie quantity to slake the lime. The he evolved by this means, together with th corrosive quality of the lime, will, withi a few minutes, destroy every worm, eve when they may have penetrated throug the bark; and this, too, without injuri the tree. If half a dozen good peach would not compensate for your labor yo are no lover of fruit.

* * *

Insects on Stock.—Well kept stoc housed in clean, well littered, white-washe stables, are rarely, unless they take the from other cattle, troubled with vermin—but pulverized copperas and sulphur, i the proportion of one teaspoonful of co peras and two of sulphur, whith a little sa —mixed in half a bushel of meal, give twice a week for three weeks, to 100 hea of cattle or hogs, is said to be a comple remedy.

EDITORIAL.

RALEIGH, MAY, 1860.

☞ Subscribers receiving the Planter with a oss *mark* opposite their address, are thereby no ied that the No. thus marked closes the time which they have paid, and unless renewed, the per will be sent no longer. We earnestly re est all who find the cross mark on this No. to omptly forward the money for the Planter an her year, and if possible, send another name a club) along with it.

The cash in advance plan is now adopted by the papers of the country, and we believe our bscribers will like it better than the credit sys n; hence, we have adopted it, and must rigidly here to it. No one will therefore feel agrieved en he finds his Planter discontinued, if he neg ts to send on money to renew. *All* will be ated alike. We trust, however, all will like us well, that each will send on his renewal as on as he sees the *cross mark.*

The Defense of the South.

We make the following extract from the ldress delivered by the Hon. A. H. uart before the Central Agricultural ciety at its last exhibition, in or near the ty of Richmond, Va. At this particular isis, every thing on the subject of slavery hich places the Northern States in the rong and the Southern States in the right, ould go before the people. At the time of e Declaration of American Independence, avery existed in all the colonies. It no nger exists in the North, but we have no cord to show that it ceased to exist by nancipation, or general abolition. On e contrary, we have records in abundance show that the legislation of these ates has been directed, not to the eman-pation but to a removal of the slave pulation beyond their limits. How was is removal effected? By selling the aves to the Southern States. And yet, ese miserable insergents of the peace, ppiness and stability of the country, yea, e Union itself, would upturn heaven and rth to accomplish the equality of all men in the pursuit of life, liberty, and the pursuit of happiness. These black-hearted infidel wretches have the audacity to quote the Declaration of Independence in support of the equal rights of negroes with whites, when they know full well that the Declaration charges king George with the offence of inciting servile insurrection. Was not this a recognition of the existence of negro slavery at the time? With what truth or sincerity, then, did they acknowledge that all men were equal? Every man who stands any chance for heaven hereafter, does know and will admit, that the language referred to in the Declaration alludes to white men. Subsequently, at the formation and adoption of the federal constitution, negro slavery existed in most of the colonies; and article 4th section 2d, provides "that no person held to service in one State under the laws thereof, escaping into another, shall, in consequence of any law or regulation therein, be discharged from such service or labor, but shall be delivered up on claim of the party to whom such service or labor may be due." Will the man in the moon, the great high priest of lunatics, deny that the clause just quoted does not allude to negro slaves? In virtue of this clause the fugitive slave laws of 1793 and 1850 were enacted, the constitutionality of which has been sustained by the Supreme Court of the United States. In violation of this constitutional provision, and the laws enacted in pursuance thereof, non-slaveholding States have interposed, by their legislation and the damnable conduct of their people, difficulties in the reclamation of fugitive slaves.

In addition to this constitutional recognition of negro slavery, we cite the 3d clause 2d section of article 4th: "Representation and direct taxes shall be apportioned among the several States which may be included within the Union, according to their respective numbers, which shall be determined by adding to the whole number of free persons, including those bound to service for a term of years, and excluding Indians not taxed, three-fifths of all other persons." Does not this language three-fifths of all other persons, allude to negro slaves? Notwithstanding all this, in addition to all their former villainous conduct, a preamble and resolutions have just been introduced in the House of Repsentatives, declaring slavery a disgrace to the country. In the South, there should be no crimination and recrimination, no difference of opinion or action on this subject, and to those who have forced its discussion on us, we would say that retributive justice is slow, but sure; the poisoned chalice will be presented to their own lips, and of the very dregs thereof they shall drink to their own damnation. Are we of the South to be denied the benefit of the first law of nature, self-preservation? Is it right or just to charge us with the agitation of this subject, when acting only in self-defence? Must we submit to the invasion of our rights and the loss of our property without resistance, for fear of being charged with agitation? The white-livered cowards who preach moderation and submission, non-agitation, would—we will not.

Since writing the above, we see that a memorial has been presented in the House of Representatives, praying the abolition of slavery wherever Congress has the right to abolish it. The black-hearted villains who signed and presented this memorial, know full well that Congress has no right to establish, prohibit or abolish slavery anywhere. This infernal firebrand, however, is aimed at the abolition of slavery in the District of Columbia, the interdiction of the slave trade between the States, and finally, when all this shall have been accomplished, the abolition of slavery in the States. These incendiaries, more hellish in their designs than Guy Faux, in attempting to blow u a corrupt parliament, have applied the torch which will result in the conflagration of the Union, unless extinguished by the united action of the South. There is no room for division at the South—no room for any but the Southern party. Let party go to the devil, till we have placed the Union upon a base, firm as the rock of ages, buried its enemies beneath, repaired the tabernacle and temple of liberty erected by our fathers, over which the stars and stripes shall never be furled, and guarded by the flaming sword of justice in the hands of all good men and true; united we stand! divided, we fall! We would that no Southern representative should ever again open his mouth in the Capito of the country on the subject of slavery The subject has been exhausted; no man living can originate a new idea thereon why then attempt to reason with fanatics Let us remain mute, stand united by th pillars of the Union, and all the abolitionists in hell and on earth shall never dissolv it. To preserve the Union we must look to the union of the South. But let Mr Stuart, speak for himself and the South—hear him for his cause.—Ed.

"History informs us, that more than century elapsed after the discovery o America, before any successful effort wa made to establish permanent settlement of the white race on the eastern coast o our country. The first colony was founde at Jamestown, in 1607, but for many year it had to struggle against such discouraging difficulties, that it barely maintained precarious existence. A few years late the Pilgrims landed on Plymouth rock and, by degrees, sparsely populated Colonies spread themselves along the coas from Maine to Georgia. The dangers an privations incident to the settlement an subjugation of a new country prevented rapid immigration to it; and, notwithstanding the strong inducements that were o fered, in the form of liberal grants of land the growth of the Colonies was, by n means, satisfactory to those interested.—

The number of laborers was inadequate to the efficient settlement and cultivation of the fertile lands. To supply this demand, the Mother Country, about the year 1620, resorted to the expedient of introducing into the Colonies a class of involuntary immigrants, in the persons of Africans, who had been captured in the wars between hostile tribes, in their native country, and, according to their usages, sold into slavery. This policy was approved and practised by the Colonies for more than a century.

"At the date of the declaration of our national independence, this system of involuntary servitude, or slavery, had become engrafted on the institutions of all the Colonies. I use the term *all* the Colonies, advisedly, for although an impression has very generally prevailed, that slavery never existed in some of the New England States, the fact is otherwise, as may be seen by reference to the census tables. According to the census of 1790, there were 158 slaves in New Hampshire, and 17 in Vermont,and official returns of 1830, show that there were slaves at that time, in every New England State, except Vermont.

"At the commencement of our national existence, therefore, a compound system of labor—partly free and partly slave—pervaded the whole confederacy.

"This system continued, in all the States, until the drudgery of subduing the primeval forests, and clearing the country for cultivation and comfortable habitation, had been accomplished. Then the citizens of the northern and middle States began to turn their attention to other branches of industry, and the discovery was soon made, that while negro labor may be profitably employed in pursuits which require more physical strength, it cannot compete, successfully, with white labor, in those avocations in which skill, ingenuity and intellect, constitute important elements. Experience also demonstrated, at an early day, that the negro race were physically unfitted to endure the rigors of a northern climate.—These considerations led to general conviction, in the Northern Colonies, that negro labor was unprofitable, and induced them to adopt measures to rid themselves of the incumbrance of an unproductive population.

"And here, it may be instructive to pause, and contemplate the means by which that object was accomplished.

"Some of our brethren of the North are disposed, like certain of the Pharisees of old, to thank God "that they are not as other men are," and to assume to themselves and their States, great credit for disinterestedness and benevolence, in liberating their slaves. I am as little disposed as any other man, to withhold from them the praise to which they are justly entitled, for their many acknowledeged virtues. I take pleasure in bearing testimony to their intelligence, integrity, industry, frugality, public spirit and general benevolence. But, respect for the truth of history constrains me to deny their right to be regarded as the benefactors of the negro race.

"A general impression prevails, both in the North and South, that the people of the Northern States, influenced by a generous spirit of philanthropy, and a noble devotion to the cause of human liberty, voluntarily emancipated their slaves, by legislative enactments. If their legislation had been such as is generally supposed, it might well be questioned, how far it would establis their just claim to any high degree of merit, in a moral point of view; because, as I have already stated, it had become manifest, before any such laws were adopted, that the slaves of the Northern States were a burthern, rather than a benefit.—The policy of those States might, therefore, be fairly attributed rather to a disposition to rid themselves of an ignorant, improvident and unprofitable population, than to a desire to do justice to a "down-trodden" race.

"But, what are the facts of the case?—My professional duty has led me to investigate the legislation of some four or five of the Northern States, on the subject of slavery; and I have yet to find a law of any one of them, by which a single slave has been made free. I think I may safely challenge the production of any such law, from the archives of any colony or State of this confederacy. This is a bold proposition, but I believe it to be true. As far as I have observed, the whole system of Northern legislation has been directed, not to the emancipation of slaves, but to the slave population beyond their limits. All their laws on the subject were prospective. None of them, as far as I have been able to discover, operated to confer freedom on the slaves in being. They simply provided, that the offspring of famale slaves, who should be born within the jurisdiction of the States passing such laws, after specified dates, should be deemed free. All who were slaves at the time, remained slaves. The laws were intended to operate only on the after-born children, and the rights secured to these were altogether contingent, and could never vest without the concurrence of the owner of the female slave. There was no prohibition of the females. If the owner thought proper to retain them in the State which had adopted such laws, her offspring, born after the appointed day, became free. Freedom, therefore, even to the after-born children, was not the effect of legislation alone, but of legislation and the concurrent action of the master, in retaining the female in the State, until the law could take effect on the children. Without the consent of the master, indicated by retaining her in the State, until after the prescribed date, the law would have been inoperative.

"It requires no great sagacity to see that the whole object and tendency of their legislation was, as I have already stated, not the emancipation of slaves, but their removal to other States. It amounted, simply, to a notice to the owner to sell his female slaves before a given day, under penalty of forfeiting her increase. The practical effects were such as might have been reasonably anticipated. The owners of the females took especial care to send them southward before the laws took effect, and in this way the unprofitable slaves were transferred to the South, where the climate was more propitious, and the productions better adapted to their peculiar capacities for labor.

"This view of the effects of these laws is strongly fortified by facts derived from census tables. We have no authentic means for ascertaining the number of slaves in any of the States, prior to 1790, and we cannot, therefore, institute all the inquiries which we might desire, but we do know that the policy of removal, mis-called emancipation, was adopted between 1776 and 1790, and was in full operation at the latter date. A reference to the census of 1790 shows, that the whole number of free negroes in the nine Northern States, (including Maine) at that date, was but 27,109. The fact that the number of free negroes in those States was so small, in 1790, is very persuasive, at least, to prove, that under this much lauded system of legisla tion, freedom accrued to a very small pro portion of the slaves of the Northern State Much the larger numbers were sold to th people of the South, and the descendant of those slaves, now held under the war ranty of title, given by Northern vender constitute a large portion of the slav population of the Southern States; an the purchase money paid for them by cit zens of the South, contributed, in no sma degree, to build up the manufactories an commerce of the Northern and Middl States.

"It is also instructive to inquire how th antislavery legislation of the North ha kept pace with the increase of the growt of the great staples of the South.

"It was not until the latter part of th eighteenth century, after Hargrave an Arkwright had invented the spinning jenn and the cotton gin, that cotton became on of the important crops of the Souther States. As late as 1794, when Gen. Pink ney, of South Carolina, enumerated to Joh Jay the exports of South Carolina, cotto was not included in the list.

"The inventions of the great mechanic above referred to, gave a vigorous impuls of the culture of cotton, and it has now be come the most important article of Ameri can commerce.

"Cotton is an article peculiarly adapte to negro labor. Its culture is simple, an requires but little skill. It can be produce profitably, only in the Southern State where the almost vertical rays of the su and the debilitating influences of the cl mate, render it impossible for the whit race to perform the labor necessary to ti and secure the crop. The physical pecu liarities of the negro, on the other han fit him admirably for the work. Create with a system of pores and glands, adapte to the tropical climate of his nativ country, he thrives and grows strong, unde the sultry heat of the planting States, whic would cause the most athletic of the Cau cassian race, to sink into hopeless prostra tion.

When cotton became an important cro in the South, it opened a wide field for ne gro labor, and created a large demand fo negro laborers. The opposite condition o things in the Northern States, where i had been ascertained, by actual experiment that negro labor could not be profitabl employed, naturally led both sections to adopt a policy which would tend to the transfer of the slave population from the northern to the southern States.

"In view of these historical facts, and logical deductions from them, it is idle to pretend, that the legislation of the North was dictated by any sentiment of negrophilism. It was the offspring of an enlightened self-interest, and of those natural and economic laws, which lead the adjustment of all things according to their just relations and affinities."

Clover Seed.

In answer to a correspondent we give the following as the best method of gathering Clover Seed:

For the information of our readers generally, and a correspondent particularly, we will state the best and cheapest mode of gathering clover seed. The one most commonly resorted to in Pennsylvania is the employment of a scythe and cradle to cut off the heads, which are caught by a bog attached to the lower fingers, the rest being removed. Another contrivance for gathering the heads in the field, consists of an open box about four feet square at the bottom, and three feet high on the sides. To the fore part, which is open, fingers are fixed at the bottom, somewhat like those of a wheat cradle; these fingers are about 13 or 14 inches long, and so arranged as to catch and tear off between them the heads from the clover stems, which are thrown back into the box as the hone advances. This box is fixed on an axletree provided with low wheels sixteen inches in diameter. Two shafts long enough for the horse are attached to the axletree between the wheels and the sides of the box. At the back part of the box, which is closed, there are two handles three feet long and 18 or 20 inches apart, resembling those of the wheelbarrow. The driver by means of the handles raises and lowers the fore part of the box, according to the height of the clover, and the fingers already mentioned catch and tear off the clover heads. As often as the box gets filled with these it is emptied, and the hone moves on as before. Mr. Bowman, of Brownsville, Pa., has improved upon this machine by substituting runners of three inch scantling for the wheels which he supposes are too high. These runners, he says, ought to be about two inches deeper behind than before, so as to elevate that part of the box, and give the fingers a depression towards the ground The teeth or fingers ought to be left flat on the top, and the edges made sharp; underneath they should be bevelled dovetail fashion, and made of iron, shaped like dirk blades. Mr. Bowman also suggests that the box should be six feet wide and five deep, which can be easily drawn by one horse, and would do more work. By the use of this machine, which any good workman can make from the description, one hand and horse can save as many seed as three hands with the scythe and bog.—Farmers can now thrash out their clover seed with nearly the same expedition that they thrash their grain. For the use of the machine the clover ought to permitted to be fully ripe, and whenever the space between the teeth become clogged they can quickly be freed by a sharp shovel, which the operator has with him in shovelling the heads to the back of the box.

A GOOD EXAMPLE.—We received last week a letter from the Secretary of the "Henderson County Agricultural Society," ordering upwards of fifty copies of the North Carolina Planter for 1860, for members of the Society. Our profound thanks are tendered for this TANGIBLE encouragement and support to our Planter; and it will be our constant effort to make each No. a vehicle for conveying practical and important information on the noble science of Agriculture. Will not other County Societies follow this noble example, and thus help us make the North Carolina Planter equal in all respects to those other Southern Agricultural journals that boast of their ten and fifteen thousand subscribers. Our prospects are improving, and we hope by the close of the year our list of subscribers will be large enough to justify increasing the North Carolina Planter to the size of the Georgia Cultivator and the Cotton Planter. Give us enough subscribers to pay the expense, and we will do it.

Errata.

In publishing the Programme for the next State Fair, in the April No. of the N C. Planter, a few inaccuracies occurred, which we here correct:

It will be the *Eighth* instead of the Seventh Annual Fair of the North Carolina State Agricultural Society.

Omitted among the Experiments, was a premium of $10 for the best series of comparative experiments in the cultivation of corn.

On page 130, third line from bottom in first column, read 1861, instead of 1860.

In the next line to this, read 10,000 for 16,000.

The top of the 2d column, page 130, should read—Best crop of half acre of Flax, with full account of cultivation and preservation, a premium of $10.

On page 130, eleventh line from top of 2d column, read quantity instead of quality.

Dr. James E. Williamson's name should have been placed as Superintendant of Nos. 1 and 2, Live Stock; and Needham Price Superintendant of Nos. 3, 4 and 5.

On same page, read $25 instead of 15, for best pair of Mules 3 years old raised in the State.

Also, on page 131, the premium for best filly, 2 years and under 4, should be $10.

On page 132, in Class B, No. 18; Sheep, Merinoes, read best pen of ewes, not less than 2—instead of 3 as printed.

On page 135, the premium for best hand corn planter should be $5, instead of 6.

On page 136 for best reaping machine made in the State $20, instead of $10.—The premiums put down for second best washing machine, and pump for wells should not have appeared. There are no premiums offered for second best specimens of these articles. On same page for 3d best sulky, read 2d best. On same page, for 8 hand rakes made in the State, read 3

On page 137, the premium offered fo best hammered bar iron, not less than one ton, manufactured south of the Potomac, should be $25, instead of $10, as printed

The List of Judges published for the next Fair was those of last year. The Judges for 1860 have not yet been appointed.

From the Southern Planter.

The Drilling of Part of every Pea-Crop both a Benefit and a Necessity.

In the three years which have passed since my communicating to the Virginia State Agricultural Society an article on the "properties, value, and culture of the Pea," my experience and observation have enabled me to correct some of my then errors of opinion, and of practice. Such errors, and the consequent false teaching when likely to mislead other persons to their loss, it is the duty of every writer to correct—as I will now attempt.

When formerly treating this subject, preferred and practiced broad-cast culture without exception. For while admitting the superior productiveness, in seed, of drilled and tilled ground, I then supposed tha broad-cast sowings would always yiel enough seed for the next crop, and a better general return for the labor employe altogether. This opinion was then opposed to the general practice of North Carolina, which was drill-culture, wherever th pea-crop occupied the ground exclusively While still preferring broad-cast to drill culture for the larger portion of the pea-cro and when it is especially designed as manuring crop, I have latterly learned t admit my former mistake, and the superio advantages of drill-culture, for a portion o the crop—and for all very early seeding and for as much of the field as will suppl plenty of seed, or as is desired to be gathered.

When land is in the best condition o pulverization, tilth, cleanness, and degre of moisture—and the weather is warr enough, and the season far enough advanced, for peas to sprout quickly, and then t grow rapidly—it will be safe, and also th cheapest and best mode to sow broad-cas Especially is this mode preferable, unde these circumstances, when the crop is wanted merely to be ploughed under, as manur or the land, and preparation for the next ucceeding crop of wheat, or cotton. Under the favorable conditions stated, and with ploughing and sowing not too early, good growth and cover may be expected, nd a clean crop, to be obtained by this most rapid and least costly mode of prepara- ion and seeding, and without any subse- uent labor or care. It is true, that the icher the land, and the thicker and ranker he growth of vines, the less abundant sually will be the product pods and seeds —if not absolutely less, at least relatively, r in proportion to the general growth of ines. This deficiency, however, may not e very important when all the product is o be ploughed under for manure.

But even when all the conditions for eeding are deemed favorable, wet and cool weather, succeeding the sowing, may check he growth, and cause the fox-tail grass, n stiff soil, and rag-wort and other worth- ess weeds of lighter soil, to spring among nd out-grow the pea-plants—and, in pro- ortion to their prevalence, to take their lace, and prevent the production of the rop as peas. And this substitution of orthless weeds for a valuable crop, will be uch more general when (as is unavoidable n many cases of large sowings,) the con- itions of time, season, and soil, were more nfavorable. Hardy as is the pea-crop fter it has been well started in growth, it ill able to withstand cool weather when ery young. And a cloddy (though well loughed and clean) soil, if hot and dry, is s injurious to the springing of late-sown eas. When this crop is sown broad-cast rgely, or occupies one field and year of he rotation of the farm, it is almost impos- ble to prevent a large portion suffering om one or both of these different evils.— n the climate of lower Virginia, (or of the nds next below Richmond,) it is too haz- rdous to sow peas (broad-cast) before the 0th of May—and it is much safer, and etter for the crop, if the sowing is em- raced in all the month of June. If be- inning any earlier, a cold spell of weather ay soon after occur, and suspend the rowth of the young plants, while the har- ier weeds and grasses, less impatient of ld and wet, grow and get ahead of the eas, and prevent much of what otherwise ould be their subsequent growth and xuriance. Still more, there are innumer- ble small bugs, (spotted beetles,) which prey upon the leaves of the young pea-plants, eating holes through the seed-leaves, and from whose depredations scarcely a leaf escapes under these circumstances.—This is the only insect plague, or disease, that I have observed to damage the pea-crop. These insects always attack the young peas, especially when in the seed leaf. But when the weather is warm, and the young plants are growing rapidly, these depredations are scarcely perceived, and cause no appreciable injury. But when cold weather checks or stops the growth, the insects are very destructive, and (with the aid of the fast-growing weeds,) will nearly destroy a previous thick stand of pea-plants. If, to avoid this frequent ill consequence of early sowing, the farmer waits for settled warm weather, he is as liable—indeed almost sure—to meet the equally great evils of soil too dry for good preparatien, a cloddy seed-bed, and consequent failure of numerous seeds to sprout, or sprouting merely to die for want of moisture for their as yet superficial roots. Besides, in all June there is so much of other and important labor required, that no farmer can then prepare for and sow, an entire field in peas. And after our wheat harvest is begun, nothing else can be attended to, until it is finished. Afterwards, it is too late to sow peas, for their full maturing, and their best manuring products. Still, (on wheat-stubble especially,) all other conditions are so entirely favorable to the ploughing, seeding and growth, that our cleanest and most profitable covers of broad-cast peas, for preparation for wheat, are obtained from such sowings, made immediately after removing the previous wheat crop, and not later than July 10th. But because of the heavy demands for labor, at that time, on a wheat farm, this excellent practice cannot be extended over much space.

On these grounds, while I still prefer, and recommend to others, broad-cast sowing for all land sown in settled, warm weather, and in good and clean order, I now advise drill sowing, and some subsequent cultivation, for all the earlier (and otherwise too early) seeding. The ready objection to this is the greater amount of labor required. It is true, that, for the space sown, drill-culture requires much more labor; but much less, if compared with the amount of crop grown, and the ease of securing it for use. If, by too early sowing, (for any particular season,) part or all of a field sown in peas is over-run by tall weeds, and but few pea-plants survive, it may by courtesy, be designated as "pea-fallow;" but, in fact, it is merely a weed-fallow, on which the labor of preparation and the sowing of peas, have been expended almost uselessly. No kind of culture can be more expensive and losing than this, no matter how small the outlay to the acre. And in this way, to more or less extent, every extensive broadcast sower of peas must suffer in every year. On the Marlbourne farm, in some years, the very general over-running, or smothering, by weeds, of the earlier-sown pea crop, has occurred on from one-third to more than one-half of the whole field, or greater breadth of sowing. In such cases, the loss of the crop as manure is not all. At least twice as much seed is required for broad-casting as for drilling—and the vines thus over-topped by weeds will not yield enough peas to pay for the gathering.—And even on the parts of the ground where the growth of pea-vines is clean and unmixed with weeds, yet if it is very thick and luxuriant, there are often too few pods and seeds to be worth the cost of gathering. Such is generally the case this year—and almost entirely on the farm mentioned.

If, then, the different labors of broad-cast and drill culture are compared, (not as to the extent of surface severally so treated, but) in regard to the products from each, it will be found that the drill mode of culture, for all early sowing, is much the cheapest and most profitable. For it is safe to drill some length of time before it will do to trust to broad-cast sowing. In either case, the young plants are equally checked by cold weather—and while so suspended in growth, are equally liable to the depredations of bugs. But, during this time, while hardy weeds are growing equally among and over-topping both, they will remain to smother the broad cast peas, but will be destroyed by the slight subsequent tillage of the drilled plants. If these but barely keep alive until warm weather comes, and they are then tilled, the weeds are killed, and the peas will grow and thrive well. I witnessed this process, with these results, this year, in a row of peas planted very early, and of which the young plants were so damaged by cold and insects, that they would have died if left without weeding. But with very slight and early tillage, this row not only speedily and entirely recovered, but was remarkable for its good products.

Now, I do not advise the abstracting o a single day from the time proper and safe for sowing peas broad-cast, to be given to the slower method of drilling and subsequent tillage—but only the earlier time which would be unsafe for broad-casting Whatever may be the time deemed safe to begin the latter operation—whether May the 20th, or June the 1st,—drilling might have been begun safely some ten days earlier. For so much of the field as could have been drilled in this time, the lan might have been ploughed at any leisure time of the preceding winter or earl spring; and these ten days, so given to drilling, would be a time when there i much less demand for labor than afterwards and during which nothing else could hav been safely done in seeding, peas. Thes ten days, and thus in advance, would enable a farmer to drill one-fourth of hi field. So when the time for broad-cas sowing arrived, (and otherwise the earlies safe time for seeding,) his general and former labors of seeding would be lessene by as much space as he had already drilled His entire seeding would be so much th sooner completed, and the more likely t be all performed in good conditions of soi and weather. This earlier finishing, if b five days, will afford that much time (the or later,)for running cultivators, or ploughs over the drilled peas, and giving the sligh hand-hoeing or weeding necessary to destroy the first weeds. If nothing mor should be done, the crop will be muc cleaner and better than of the later-sow broad-cast peas. And a second and late and shallow ploughing, would be all tha would desired for the best production.—There would be, indeed, considerably mor cost of tillage. But, in compensation, ther would be a saving of seed, a clean and fu crop of peas, and the pods so much mor abundant and perfect, that twice as man seeds could be gathered as is usual or practicable from broad-cast vines. This is th testimony of the largest pea-farmers c North Carolina, who raise, and gather b hand, nearly all the peas that are sold i our markets.

There is another aspect which deserve

otice. Drill culture, to whatever extent t may be convenient to be adopted on any arm, will always be early seeding, and in- luce earlier maturity of the pea-crop.— hus, if serving to advance the maturity of he latter portion of the general sowing, y ten days, it may double the manuring alue of the products of that latter portion f the crop. For unless the seeds are ful- y grown, I believe that the best manuring alue of the pea-plant has not been formed. would expect but little of manuring bene- t from a cover of peas ploughed under efore any pods were grown—or (as some loset-farmers earnestly enjoin as essential,) hen the plants are just in blossom. In ur Piedmont region, the trials of the pea- allow have been, as generally found, or upposed to be, of no benefit, as they have een certainly beneficial in the tide-water egion. I do not dispute these alleged acts of failure, sundry of which are of the xperiments of farmers whom I know well, nd than whom there can be no better au- ority. Neither can I pretend to account or this want of benefit as different from l experienced and resorted elsewhere.— ut this is certain: the best growing (or ot) season, is too short, even in lower Vir- inia, for the best production of the pea- rop—and still less favorable is the climate s the mountains are approached. I thence fer, that in most cases of trial in the high- country, the pods and seeds were not nough advanced in growth to have reach- d their mature and important value as anure. This may not be the only reason r the comparative inefficacy of the pea- op in the upper country. But so far as e late maturing is an obstacle to profita- e production there, the drilling would go r to remove that objection. If, by this eans, the time of seeding could be safely lvanced ten days, and thereby as much e time of maturing, the profitable pro- action of the crop may be extended one andred miles farther North and West, yond the previous limits of broadcast lture. In this and the preceding ear, the broad-cast pea crops have en very unproductive grain. Broad- st culture has been greatly extending in te years, and consequently the demand seed has been greater than the supply. eas which formerly were sometimes as w as 40 cents the bushel, were, last spring high priced as $1 40 to $1 50. If every farmer, who sows peas, would drill but one-tenth part, (and that of the poorest part) of his field, he would not fail to obtain a plenty of seed, and could gather them at half the labor otherwise to be incurred—or for one-third of the cost of buying them, at recent prices. As long as broadcast sowing is the general course, the price of peas must continue high—and that will render the crop of grain (or seed) profitable, not only for home use, but for market, for all drill culturists, who are favorably situated as to soil and climate.

It is proper to add, that while I have had abundant experience of the stated disadvantages of broadcast culture, when it was too early or very extensive, and the attendant failures of products, both of grain and vine, I did not try drill culture while I continued to be a practical farmer—and that I derive from information, and the experience and observation of others, all the facts above stated of the superior products of drill culture. The reasoning upon and deductions from these facts, for which I am responsible, the judicious reader may decide upon as well as the author.

EDMUND RUFFIN.

Marlbourne, Nov. 6th, 1857.

Salt as a Fertilizer.

A correspondent of the Southern Planter makes the following statement in references to the use of common salt on land that was supposed to be injured by the too free application of marl:

"This neighbor—a gentleman of undoubted veracity—stated to me that he had some spots in his field which had been some years ago overmarled by his father, so heavily indeed, that but little or no grain of any kind could be produced; the corn would look well until about knee high, and then assumed a sickly, yellow appearance, and the blades finally moulder away.

After much reflection on the subject, he determined to sow a few bushels of refuse fish salt upon the worst portion, and see what effect, if any, that application would have. He had to wait but a short time, as he relates, before the appearance of this corn was changed from a yellow to a flourishing green; in fact, the blades, the ends of which had mouldered away, took a second growth.

I asked this neighbor what chemical

change he supposed had taken place between the salt and lime. His reply was, that he did not know—but one thing he *did* know, that the effect was so manifest that the most casual observer could not fail to perceive it."

It is not necessary to assume any chemical action between the salt and marl to account for the benefit derived from the salt. It gave the suffering corn plants two elements of food of which the soil had but little. Common, from its extreme solubility, is washed out of tilled land sooner than almost any other agricultural salt. Did not the solar evaporation of water from the ocean, and high winds, convey in clouds an appreciable quantity of common salt over islands and continents, tillage alone would impoverish fields much faster than is now witnessed. Salt is far more a necessity with agricultural plants than with man to season his fresh meats, his daily bread, potatoes, and other vegetables.—Animal and vegetable life long flourished in the salt sea before any land plants or animals were created; or amphibiously crawled out of the ocean, and learnt by degrees to live altogether on dry land, yet not without both salt and water.

All the soluble salts that the ocean gives to the surface of continents, flow back into it again, sooner or later, and some more, as interest on the loan. In other words, rivers convey to the sea more "salt of the earth" than vapors, clouds, and winds remove therefrom. Hence, the sea is salter than its attributaries.

Southern Field and Fireside.

Horticulture.

From the Southern Field & Fireside.

Mulching—Planting Dwarf Pears.

Mr. Editor :—Two of your articles—that on mulching Irish potatoes, and that on planting pear trees—seem to me to require further explanation.

In the first you say that the mulching must not be done until all danger of frost be over. The reason you give is, that the evaporation from wet lands makes the ground colder and frost more injurious.

Is this a well established fact? (1) In your work on Gardening, you recommen mulching as a method of preventing evaporation. (2.) Mr. London also states that half hardy plants may be saved during several winters, by mulching the roots.—(3) How is it, then, that mulching Irish potatoes renders them more liable to injury from cold, whilst the same process will, during a freeze, protect half hardy plants?

As to planting dwarf pear trees too deeply, you say that you and Mr. Van Buren have lost many trees from deep planting. May not this loss have been due to the nature of your soil? Was it, or not, a stiff clay into which the air could not penetrate?

On *our* sandy loams, dwarf pears may be planted below the point of junction with the quince, without a loss of one per cent. from this cause. I have, in some cases where the quince stock was too lively, cut off five inches of the lower part of the root, so that the whole of the quince stock might be covered, and yet none of the roots be too deep to be reached by the air. May not this practice be necessary always in clay soils? Would it not entirely remedy the evil of which you complain?

A DABBLER.

1. Evaporation lowers the temperature. Of this well known fact we take advantage, when we sprinkle the floors of our rooms to render them more cool. It is very obvious that a bed of damp leaves, wherein each surface leaf has two sides exposed to the atmosphere, will, so long as it is equally damp, exhale moisture nearly or quite twice as rapidly as the same area of soil. The latter having but one surface exposed, will part with its moisture more slowly, and consequently lower the temperature of the adjacent air less rapidly.—In a still, cold night, after rain, at the surface of the soil or of a bed of leaves, the thermometer will indicate a lower temperature than a few feet above in the air or in the earth a little below the surface, where there is no evaporation going on. We had in mind a case in point when we wrote the article on the Irish potato. Two squares of this vegetable were planted, side by side, and of both the tops were well up. Both it was designed to mulch, and to one the leaves had already been applied, when a white frost occurred. In the mulched pla the plants were killed to the surface; in

the unmulched the foliage was also injured, but the stalks were not killed; and though growth was retarded somewhat, new leaves were thrown out, and a fair crop produced. In the mulched portion the crop was a failure, the new shoots from the root being weak and slow to appear.

We had, ourselves, the same ill luck from mulching a plot of cucumbers, losing them entirely, when others not mulched were uninjured. We have also seen a freshly worked plot of snap beans, from which moisture was evaporating rapidly, killed by frost, while those were little injured which were in dry, undug soil.

2. We say, in our Gardening, "Mulching prevents evaporation." It does *from the soil*, which it screens from the sun and drying atmosphere, and it is there that it is desirable evaporation should be prevented. The mulching itself, when wet, it is true, exhales water rapidly, but this is a matter of no moment, as far as the plants are concerned, so long as the soil in which their roots are nourished is in a suitable state of moisture.

3. Paradoxical as it seems, mulching may, in one instance, increase greatly the injury done by frost, and in others prevent all injury whatever. Certain plants, especially young seedlings, are seriously and generally fatally injured, if their tops are cut down by frost, having little or no reserve of nourishment and vitality at the roots. Beans and the cucumbers trill are, by slight frosts, killed outright; and the Irish potato, when it has made much growth, if the vine is destroyed, though it will throw up new shoots, is ruined in product. To such plants as mulching endangers the destruction of the young shoots by frost, it should not be applied until the period of danger is past.

In another class of plants, which it is sought to keep alive through the winter for instance, half hardy herbaceous perennials, it is no matter whether the leaves and stems of the plants live or die, so that its crown is protected, from which in Spring the new growth is to proceed. It is to such plants, we think, that London refers, when he says: "The roots of many sorts require to be protected from frost by ashes, rotten tan, or litter." (The passage to which we suppose our correspondent alludes.) Now, the articles used in mulching are generally bad conductors of heat, and if they even increased the cold at their surface, as they do at times, they would not conduct it, but would prevent its reaching to the roots and crown of the plant, thus preserving it from injury. Another class of plants are half hardy shrubs, in which it is as important to protect the collar and stem a few inches above it, with the roots, as it is the roots and crown of the half hardy herbaceous plants. If the branches and upper part of the stem are totally destroyed, the life of the plant is not affected, as on culling away the injured part new shoots will spring up from the neck or collar of the plant. Lemon, Verbena, and tender roses, are thus kept safe through the winter, by suitable mulching. All the part uncovered is usually destroyed, but of that beneath the surface, the vital force is unimpaired. It will thus be seen that half hardy plants can be benefitted by mulching, when in winter, while by the same process in spring Irish potatoes would be endangered.

We have not, as yet, mentioned one fact that is pertinent. In protecting plants, it is often no matter whether they freeze or not, so that the frozen parts are gradually thawed without exposure to the sun and air. We had pears as large as musket bullets frozen about as hard one night last April, and the crop would have been lost if left. Just before day a dense cloud of smoke was raised with wood and wet tan-bark, and continued until the frost was extracted, and the sun well up, and the crop was saved from injury.

Trees and plants from a distance, packed in bundles, are often frozen while in transit. If opened while frozen, most of them perish, if placed in the ground unopened, or in a dark cellar, until the frost is extracted, plants are saved. Mulching, then, if not sufficient to keep the plants from freezing at the collar or the root, still often renders the thawing process so gradual that the plant is not injured.

As to deep planting dwarf pear trees; This will be less injurious in a light, sandy soil, than in our heavy, up-country loams, because the more porous nature of the former admits the air to penetrate to the roots, and, also, because in such a soil, new roots will often proceed from the stem before the tree perishes. It will, also, be less dangerous in proportion as the tree is young. New roots being freely thrown out from young wood, and scarcely at all from the bodies of older trees. But there is nothing gained, and time and trees are lost by deep planting. Pears on the quince stock should always be worked within an inch of the ground, and in planting, the point where they are worked may be buried another inch with safety. There is neither philosophy nor common sence in cutting the roots a plant already has in order to make it throw out another set to replace them. It is better to have the tree so worked that the roots it has may be retained.

Grape Growing and Wine Making in California.

Continued.

TREATMENT OF WINES.

When the White Wine has thoroughly fermented in the barrel and become clear it has to be drawn into another clean, and previous to filling it, sulphurated barrel; of course, White Wine is put into a barrel which contained before White Wine or was charred recently. Keep the barrels always well filled. At least every fortnight (better once a week) have them cleaned at the bunghole of the socalled wine flower, and filled up with the same kind of wine, or even with better, but never with inferior stuff. In the first months it will take more wine to fill the barrels than towards the end of the year.

If you have a barrel, as we call, on the fosset from which wine is drawn from time to time, or daily, when such a barrel becomes a quarter or more vacant, put a small sulphur brand in the same, first to prevent your wine from being partly transmuted into vinegar, and second, that said empty place in your barrel shall not become mouldy and spoil the succeeding wine, or has to be unheaded and charred anew.

MAKING CALIFORNIA TOKAY.

This noble wine, which I have made in California, with good success, is made as follows:

Select your best and ripest grapes, place them upon straw mats or cloths under some shady place, let them be there some four or five weeks, when they are well shriveled or half dry you pick out every rotten berry; put, then, about one hundred pounds in a bag made from common coffee bag stuff, hang that bag up and place some vessel under it to collect the droppings by its own weight, turning often said grapes in the bag with the hand; when it stops dropping, empty the bag in the crushing machine, crush the grapes and press the juice out of them, give both kinds separate barrels to ferment in, and designate the same with No. 1 and No. 2, viz: the pressed juice will give the second quality of Tokay, and the other first quality. Observe to its treatment the rules above given, and you will have an excellent Tokay like wine, but it will require from 3 to 4 years before it is fit for market.

MAKING CHAMPAGNE.

For this quality of wine it seems the Sonoma Valley is peculiarly well adapted, as our White Wine, even if not manufactured into Champagne, possesses a taste similar to the Champagne that has stood some time in a tumbler or open bottle, and it makes an excellent article, though combined with a great deal of labor.

First. The grapes destined for Champagne must be overripe, sticking to the fingers as above mentioned; they must be gathered on a frosty or very cold morning, early, if possible, before the sun rises, put in a sack of strong linen, and by twisting it the best juice is pressed from the grapes, leaving the balance for common wine, fill with this still cold juice your clean, well sulphurated barrel half full only, put a long bung into it strongly guarded with such filling that it may be easily removed without disturbing the fluid in the barrel when you extract the bung; secure, also, the headings of the barrel that the gaseous matters of the fermentatien shall not force them out, and leave it in this state, undisturbed, until February or March, then open carefully the bung, that the fluid shall not stir up the sediments, put in a syphon, but mind that said syphon shall not reach as low as the settlings, and draw the clear fluid in a clean barrel with a stop-cock, and from there into the bottles, each bottle to receive first one spoonful of powdered candy sugar and a spoonful of the best and purest spirits of wine; cork the bottles with a corking machine purposely made for it, tie the cork down with a strong hemp twine, then lay your bottles on their sides, so that the cork is always kept in the fluid;

e bottles must be for several months,
om time to time, handled to regulate the
rmentation; if too slow, they must be
it in a warmer place, if too strong in a
oler one, then if not well regulated thus,
e bottles will burst by hundreds, and
th the utmost care about 5 per cent. of
em will be lost. The bottles must, in
is way, be handled twice every week and
adually raised on the bottom so that they
come more and more perpendicularly
anding on their neck, so that the sedi-
ent will settle on the cork and leave the
lance of the wine perfectly clear, which
e practical eye of the Champagne maker
ll soon discover; then the bottle is ta-
n by one well trained for this task in
s left hand carefully, not to disturb the
ne, while his companion cuts the twine,
d taking hold with his right on the cork
lets the same slide out to leave for a
oment only a small aperture of which
out a teaspoonful can escape into a basin
er which he holds the inclined bottle,
d immediately presses the cork to its
rmer position and holds it there fast until
s partner ties it with a strong hemp
ine, which, lastly, is strengthened with
copper wire. By this operation the set-
gs on the cork are ejected with great
rce in a moment, and leave the wine en-
ely-like. That to this operation a well
acticed hand is needed, every one will
rceive. I would, therefore, not recom-
end the attempt to make Champagne for
arket, at this is a trade by itself, and in
ge wine establishments where they make
e Champagne every man has his own
ty or office to peform; one fills, another
rks them, another lets the settlings blow
t, etc. But the above is only given that
ateurs may make for their own use some
ttles of it.

TO MAKE PORT WINE.

To make good and superior Port Wine,
e good ripened black grapes, dry them
the sun almost to raisins; when so dried
k the berries from the stems, crush them
d put them in the fermenting tub. If
ur grapes are not very sweet, put fifteen
unds of New Orleans sugar to each sixty
llons of one or two years old Red Wine
d two gallons of pure spirits of wine;
en let the mass slowly ferment. When
mented and clear in the tub, draw off in
rrels, but fill the barrels only two-thirds full; take after this one-third of the liquid, put it in a clean boiler, bring it to a boiling heat, but let it boil up only once, and taking it from the fire fill your already two-thirds full barrels within six inches with the same, cover the bunghole with leaves or clean rags; the mass will thus ferment again. In the month of May you may draw the wine in a clean barrel. This will make, in a couple of years, an elegant Port Wine.

This trratise being written for the Agricultural Report, I cannot take too much space in enumerating the making of the various other Wines. I will, therefore, leave that to a more extended work which I intended to publish soon.

To be Continued.

For the N. C. Planter.

Charcoal for Flowers.

Last fall we had some Hyacinths removed, which had bloomed poorly the spring before, on account of the poverty or unsuitableness of the soil, I thought. The bed to which they were removed was made very rich with manure from the kitchen window and stable manure, which was thoroughly intermixed with the soil. After the plants had come up this spring, one of them, not remarkable that I knowof for greater vigor of appearance than the others, was thickly dressed with charcoal applied around the plant on the surface of the ground. Very soon it showed sign of improvement, its color was a much deeper green than the others and its leaves were much longer and broader. Its stem when full grown was nearly twice the length of the others, and while they bore from 8 to 10 bellf, it bore twice the latter number The color of this flower was the finest I have ever seen, attracting the attraction, and eliciting the admiration of every one who saw it.

I hesitated, however, to impute this great improvement to the use of charcoal, for although I could see no other possible "rationale," still, from the simplicity of the experiment I feared that some unknown cause might have been operating. I reasoned also that if such great virtue was possessed by a substance so simple, and at the same time so convenient, could it have been unknown so long to Florists?

The following extract, and the readiness with which it is reprinted, proves alike that my experiment has been confirmed, and that it is one heretofore unknown :

A French amateur, in the Paris Horticultural Review states: "About a year ago I made a bargain for a rose bush of magnificent growth, and full of buds. I waited for them to bloom, and I expected roses worthy of such a noble plant, and of the praise bestowed upon it by the vender. At length, when it bloomed, all my hopes were blasted. The flowers were of a faded color, and I discovered that I had only a middling multiflora, stale-colored enough. I, therefore, resolved to sacrifice it to some experiments which I had in view. My attention had been captivated with the effects of charcoal, as stated in some English publications. I then covered the earth (in the pot in which my rose-bush was) about half an inch deep with pulverized charcoal.—Some days after, I was astonished to see the roses which bloomed of as fine a lively rose color as I could wish. I determined to repeat the experiment; and, therefore, when the rose-bush had done flowering, I took off the charcoal and put fresh earth on the pot. You may conceive that I waited for the next spring impatiently to see the result of this experiment. When it bloomed, the roses were as at first, pale and discolored; but by applying charcoal as before they soon resumed their rosy-red color. I tried the powdered charcoal likewise in large quantities upon my petunias, and found that both the white and the violet flowers were equally sensible to its action. It always gave great vigor to the red or violet colors of the flowers, and the white petunias became veined with red or violet tints. The violets (colors) ? became covered with irregular spots of a blueish or almost black tint. Many persons who admired them thought that they were new varieties from seed. Yellow flowers are, as I have proved, insensible to the influence of the charcoal." J. S. D.

For the Ladies

Greenhouse.

In the early part of the present month all the winter blooming Greenhouse plant should be turned out of doors, and some o the more hardy out of the pots. It is bes when this plan is adopted, to prepare bed for the purpose in a shady situation; mar off a bed four feet wide, and as long as necessary to accommodate the number o plants you may wish to bed out; the soi cannot be too rich, provided leaf or vegetable manure be used. Greenhouse plant are not half the trouble when managed th right way during the summer months, an make much finer plants for winter display they should be repotted the early part o September and moved in the house befor the approach of frost. If grape vines ar trained up the rafters of the Greenhouse encourage them to grow vigorously afte the plants are taken up. Syringe mornin and night, just after sunrise and before sunset; use water 10° higher than the temperature of the house, if it can be had. I the present state of growth, keep the temperature ranging from 75° to 80°, thoug there is no harm in a higher degree o heat, provided there is plenty of air admitted and a good ventillation throughout th house. Stop the young growth two t three joints above the bunch, according t the strength of the wood; so soon as th blooms on the bunch expand, discontinu syringing but keep a moist atmosphere b dampening the pathways and borders;—when the fruit is set syringe again as before.

PELAGONIUMS.—Shade those in bloo and keep them well supplied with water by this means they will remain in bloom long time.

FUSCHIAS.—Encourage these to gro rapidly, if in pots, by feeding them wit weak liquid manure once per week; whe it is ascertained the roots have reached t the sides of the pot they should be shifte to a size larger pot.

CAMELIAS.—A shady situation, spri klod overhead frequently, and swept w d watered with clear drainage, will be e treatment they delight in. Exposure the sun turns the foliage brown and akes the plant generally unhealthy.

Flower Garden—Bedding Out.—ll danger of frost now being over, all ten- r plants intended for summer display ould be placed in the beds previously epared for them. We would once more ge on our readers the importance of ar- nging the colors so as to heighten the ef- ct of the other; beds cut out, as it were, the grass on the lawn has a beautiful ef- t. We prefer this mode of arranging wers, to a regular flower garden. Fewer ants make a greater display, the beds be- g so much farther apart show the plants d color of flowers to great advantage.—e shape of these beds is worthy of some nsideration; they should be made of va- ous shapes and in such positions as to ve beauty to the whole place. The cost filling a few beds with flowers is trifling deed, when the enjoyment of them is ken into consideration.

W. H. HAMILTON,
Raleigh, N. C.

Culinary Department.

Celery.—Plants that have already been ked out in small beds, should regularly watered in dry weather. It is best to let em stand about three inches each way; ep them clear of weeds and the soil—quently stirred to encourage growth; by s treatment they will be more easily nsplanted the last time.

Rotation of Crops.—Peas, snaps, short ans, spinanch, cucumbers, turnips, corn, tuce and radishes; successional crops of se should not be overlooked. A little servation will teach the novice in such tters when to make the different sowings succeed each other.

Tomatos, Egg Plant and Pepper. full supply of the above should be plant- where needed. The egg plant requires y rich soil and a moist situation. The ge smooth Tomato is the best variety to w.

---

trawberries.—These may be mulched: do not use stable manure for this purpose; grass from the lawn is best; by this means the ground is kept moist and the fruit clean. Supply them liberally with water, whenever this can be done; the fine flavor and size of the fruit will amply compensate for the trouble taken with them.

W. H. HAMILTON,
Raleigh, N. C.

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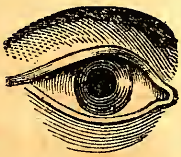

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Cancers, old Sores, or Ulcers, Hip Disease Fistula, of every description, Scal Head, Wens, Polypus of the Nose.

Or in any part of the body,

Tumors, and Swellings,

of every description, and without the use of th knife, or any surgical instruments. These la named diseases cannot be cured by correspo dence; therefore all such patients must pla themselves under the Doctor's personal supervi ion.

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1860.

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Newbern, N. C., Dec. 10, 1859. 16—tf

SCROFULA, OR KING'S EVIL,

is a constitutional disease, a corruption of the blood, by which this fluid becomes vitiated, weak, and poor. Being in the circulation, it pervades the whole body, and may burst out in disease on any part of it. No organ is free from its attacks, nor is there one which it may not destroy. The scrofulous taint is variously caused by mercurial disease, low living, disordered or unhealthly food, impure air, filth, and filthy habits, the depressing vices, and, above all, by the venerel infection. Whatever be its origin, it is hereditary in the constitution, descending "from parents to children unto the third and fourth generation; indeed, it seems to be the rod of Him who says, "I will visit the iniquities of the fathers upon their children."

Its effects commence by deposition from the blood of corrupt or ulcerous matter, which, in the lungs, liver, and internal organs, is termed tubercles; in the glands, swellings; and on the surface eruptions or sores. This foul corruption which genders in the blood, depresses the energies of life, so that scrofulous constitutions not only suffer from scrofulous complaints, but they have far less power to withstand the attacks of other diseases; consequently vast numbers perish by disorders which, although not scrofulous in their nature, are still rendered fatal by this taint in the system. Most of the consumption which decimates the human family has its origin directly in the scrofulous contamination; and many of the destructive diseases of the liver, kidneys, brain, and, indeed, of all the organs, arise from or are aggravated by the same cause.

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the most effectual remedy which the medical skill of our times can devise for this everywhere prevailing and fatal malady. It is combined from the most active remedials that have been discovered for the expurgation of this foul disorder from the blood, and the rescue of system from its destructive consequences. Hence, it should be employed for the cure of not only Scrofula, but also those other affections which arise from it, such as Eruptive and Skin Diseases, St. Anthony's Fire, Rose, or Erysipelas, Pimples, Pustules, Blotches, Blains and Boils, Tumors, Tetter and Salt Rheum, Scald Head, Ringworm, Rheumatism, Syphilitic and Mercurial Diseases, Dropsy, Dyspepsia, Debility, and, indeed, all Complaints arising from Vitiated or Impure Blood. The popular belief in "impurity of the blood" is founded in truth, for scrofula is a degeneration of the blood. The particular purpose and virtue of this Sarsaparilla is to purify and regenerate this vital fluid, without which sound health is imposible in contaminated constitutions.

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no longer hesitate what antidote to employ f
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April 2, 1860.

JUNE NUMBER, 1860.

NORTH CAROLINA PLANTER.

A MONTHLY

Southern Agricultural Journal:

DEVOTED TO
THE IMPROVEMENT OF SOUTHERN FARMING, HORTICULTURE,
FLORICULTURE, AND THE DOMESTIC AND MECHANIC ARTS.

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Rev. John Cumming, D. D., F. R. S. E.

For sale at POMERO
Raleigh Feb., 1860.

THE NORTH-CAROLINA PLANTER.

Devoted to Agriculture, Horticulture, and the Mechanic Arts

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VOL. 3. **RALEIGH, N. C., JUNE, 1860.** **NO. 6.**

The Practical Farmer.

Who is the *practical farmer?* Let us look at two pictures and decide.

Here is a farm of 100 acres in ordinary condition. It is owned and tilled by a hard-working man, who, in the busy season, employs one or two assistants. The farm n free from debt, but it does not produce is abundant income; therefore, its owner cannot afford to purchase the best implements, or make other needed improvements; besides, he don't *believe* in such things. His father was a good solid farmer; so was his grandfather; and so is he, or thinks he is. He is satisfied that the good old way' is best, and he sticks to it. He works from morning till night; from spring till fall. In the winter, he *es s*, as much as his lessened duties will allow. During this time, he reads little, or nothing. Least of all does he read about farming. He don't want to learn how to dig potatoes out of a book. Book farming is nonsense. Many other similar ideas keep him from agricultural reading. His house is comfortable, and his barns are quite as good as his neighbors', while his arm gives him a living. It is true that his soil does not produce as much as it did en years ago; but prices are better, and he is satisfied.

Let us look at his premises, and see how his affairs are managed. First, examine the land. Well, it is good fair land. Some of it is a little springy, but is not to be called *wet*. It will produce a ton and a half of hay to the acre—it used to produce two tons. There are some stones on the land, but not enough in his estimation to do harm. The plowed fields are pretty good; they will produce 35 bushels of corn, 13 bushels of wheat, or 30 bushels of oats per acre, when the season is not dry. His father used to get more; but, somehow, the *weather* is not so favorable as it was in old times. He has thought of raising good crops, but they take more labor than he can afford to hire. Over, in the back part of the land there is a muck-hole, which is the only piece of *worthless* land on the whole farm.

Now, let us look at the barns and barnyards. The stables are pretty good. There are some wide cracks in the siding, but they help to ventilate, and make it healthier for the cattle. The manure is thrown out of the back windows, and is left in piles under the eaves on the sunny side of the barn. The rain and sun make it nicer to handle. The cattle have to go some distance for water; and this gives them exercise. All of the cattle are not kept in th stable; the fattening stock are kept in the various fields, where hay is fed out to them from the stack. The barn-yard is often occupied by cattle, and is covered with their manure, which lies there until it is carted on to the land. In the shed are the tools of the farm, consisting of carts, plows—not deep plows, this farmer thinks it best to have roots near the surface of the soil where they can have the benefit of the sun's heat,—a harrow, hoes, rakes, etc. These tools are all in good order; and, unlike those of his less prudent neighbor, they are protected from the weather.

The crops are cultivated with the plow and hoe, as they have been since the land was cleared, and as they always will be until this man dies.

Here is the 'practical farmer,' of the present day. Hard working, out of debt, and economical—of dollars and cents, if not of soil and manures. He is a better farmer than two thirds of the three millions of farmers in the country. He is one of the best farmers in his county—there are but few better in the county, not many in the State. He represents the better class of his profession.

With all this, he is, in matters relating to his business, an unreading, unthinking man. He knows nothing of the first principles of farming, and is successful by the *indulgence* of nature, not because he understands her, and is able to make the most of her assistance.

This is an unpleasant fact, but it is one which cannot be denied. We do not say this to disparage the farmer, but to arouse him to a realization of his position and of his power to improve it.

But let us see where he is wrong.

He is wrong in thinking that his land does not need draining. He is wrong in being satisfied with one and a half tons of hay to the acre when he might easily get two and a half. He is wrong in not removing as far as possible every stone that can interfere with the deep and thorough cultivation of his soil. He is wrong in reaping less than his father did, when he should get more. He is wrong in ascribing to the weather, and similar causes, what is due to the actual impoverishment of his soil. He is wrong in not raising turnips, carrots, and other roots, which his winter stock so much need, when they might be raised at a cost of less than one third of
their value as food. He is wrong in considering worthless a deposit of muck, which is a mine of wealth if properly employed. He is wrong in *ventilating* his stables at the cost of *heat*. He is wrong in his treatment of his manures, for he loses more than one half of their value from evaporation, fermentation, and leaching. He is
wrong in not having water at hand for his
cattle—their exercise detracts from thei
accumulation of fat and their production o
heat, and it exposes them to cold. He i
wrong in not protecting his fattening stock
from the cold of winter; for, under expo
sure to cold, the food, which would other
wise be used in the formation of *fat*, goe
to the production of the animal heat ne
cessary to counteract the chilling influenc
of the weather. He is wrong in al
lowing his manure to lie unprotected i
the barn-yard. He is wrong in not ad
ding to his tools the deep surface plow, th
subsoil plow, the cultivator, and many oth
ers of improved construction. He is wron
in cultivating with the plow and hoe, thos
crops which could be better or more cheap
ly managed with the cultivator or horse
hoe. He is wrong in many things more
as we shall see if we examine all of hi
yearly routine of work. He is right in
few things; and but a few, as he himse
would admit, had he that knowledge o
his business which he could obtain in th
leisure hours of a single winter. Still, h
thinks himself a *practical* farmer. I
twenty years, we shall have fewer such, fo
our young men have the mental capacit
and mental energy necessary to raise the
to the highest point of practical educatio
and to that point they are gradually bu
surely rising.

Let us now place this same farm in th
hands of an educated and understandin
cultivator; and, at the end of five year
look at it again.

He has sold one half of it, and cult
vates but fifty acres. The money for whic
the other fifty were sold has been used
the improvement of the farm. The la
has all been under-drained, and shows th
many improvements consequent on suc
treatment. The stones and small roc
have been removed, leaving the surface
the soil smooth, and allowing the use
the sub-soil plow, which with the unde
drains have more than doubled the produ
tive power of the farm. Sufficient lab

employed to cultivate with improved
ols, extensive root crops, and they inva-
ably give a large yield. The grass land
oduces a yearly average of 2½ tons of
y per acre. From 80 to 100 bushels of
rn, 30 bushels of wheat, and 45 bushels
oats are the average of the crops reaped.
he soil has been analyzed, and put in the
st possible condition, while it is yearly
pplied with manures containing every
ing taken away in the abundant crops.
he analysis is never lost sight of in the
gulation of crops and the application of
anures. The *worthless* muck bed was re-
ined, and is made worth one dollar a
ad to the compost heap, especially as the
nd requires an increase of organic matter.
new barn has been built large enough
store all of the hay produced on the
rm. It has stables, which are tight and
arm, and are well ventilated *above* the
ttle. The stock being thus protected
om the loss of their heat, give more milk,
d make more fat on a less amount of
od than they did under the old system·
ater is near at hand, and the animals
e not obliged to over exercise. The ma-
re is carefully composted, either under a
ed constructed for the purpose with a
nk and pump, or is thrown into a cellar
low, where the hogs mix it with a large
ount of muck, which has been carted in
ter being thoroughly decomposed by the
ne and salt mixture.

They are thus protected against all loss,
d are prepared for the immediate use of
ps. No manures are allowed to lie in
e barn-yard, but they are all early remo
d to the compost heap, where they are
eserved by being mixed with carbona-
ous matter. In the tool shed, we find
ep surface-plows, sub-soil plows, cultiva-
rs, horse-hoes, seed drills, and many oth-
valuable improvements.

This farmer takes one or more agricultu-
l papers, from which he learns many new
ethods of cultivation, while his knowl-
ge of the *reasons* of varous agricultural
ects enables him to discard the injudi-
us suggestions of mere *book farmers* and
educated dreamers.

Here are two specimens of farmers.—
either description is over-drawn. The
st is much more careful in his operations
an the majority of our rural population.
e second is no better than many who
y be found in America.

We appeal to the common sense of the reader of this to know which of the two is the *practical farmer*—let him imitate either as his judgment shall dictate.

Annalysis.

At the present time, when such marked improvements have been, and are still being made, in the practice of agriculture, the farmer cannot be too strongly advised to procure an analysis of his soil, and for obvious reasons.

It has been sufficiently proved that the plant draws from the soil certain kinds of mineral matter, in certain proportions; also, that if the soil do not contain the constituents required, the plants cannot obtain them, and consequently cannot grow. Furthermore, in proportion to the ability of the soil to supply these materials, in exactly the same proportion will it, when under good treatment, produce good and abundant crops.

All admit the value and the necessity of manures; they are required to make up deficiencies in the soil, and consequently, they must supply to it the matters which are wanting. In order to know what is wanting, we must know the composition of the soil. This can be learned only by accurate chemical analysis. Such an analysis every farmer must possess before he can conduct his operations with *true practical economy.*

An important question now arises as to whether each farmer can make his own analyses. He cannot do so without long study and practice. The late Prof. Norton said that, at least *two years'* time would be necessary to enable a man to become competent to make a reliable analysis. When we reflect that a farmer may never need more than five or six analyses, we shall see that the time necessary to learn the art would be much more valuable than the cost of the analyses (at $5 or $10 each), setting aside the cost of apparatus, and the fact that while practicing in the laboratory, he must not use his hands for any labor that would unfit them for the most delicate manipulations.

Neither will *travelling* chemists be able to make analyses as accurately and as cheaply as those who work in their own laboratories, where their apparatus is not liable to the many injuries consequent on frequent removal. The cost of sending one hundred samples of soil to a distant chemist, would be much less than the expense of having his apparatus brought to the farm where his services are required.

The way in which an analysis should be used is a matter of much importance. To a man who knows nothing of chemistry (be he ever so successful a farmer), an analysis, as received from a chemist, would be as useless and unintelligible as though it were written in Chinese; while, if a chemist who knew nothing of farming, were to give him advice concerning the application of manures, he would be led equally astray, and his course would be any thing but *practical*. It is necessary that chemical and practical knowledge should be combined, and then the value of analysis will be fully demonstrated. The *amount* of knowledge required is not great, but it must be *thorough*. The information contained in this essay is sufficient, but it would be folly for a man to attempt to use an analysis from reading it once hurriedly over. It must be studied and thought on with great care, before it can be of material assistance. The evenings of one winter, devoted to this subject, will enable a farmer to understand the application of analysis to practical farming, especially if other and more compendious works are also read. A less time could hardly be recommended.

Where this attention cannot be given to the subject, the services of a Consulting Agriculturist should be employed to advise the treatment necessary to render fertile the soil analyzed.

Every farmer, however, should learn enough of the principles of agriculture to be able to use an analysis, when procured, without such assistance.

Nearly all scientific men (all of the highest merit) are unanimous in their conviction of the *practical* value of an analysis of soils; and a volume of instances of their success, with hardly a single failure, might be published.

Prof. Mapes says, in the *Working Farmer*, that he has given advice on hundreds of different soils, and *not a single instance* can be found where he has failed to produce a profit greater than the cost of analysis and advice. Dr. T. C. Jackson, of Boston, the late Prof. Norton, of Yale College, and others have had universal success in this matter.

Analysis must be considered the only sure road to economical farming.

To select samples of soil for analysis, take a spadefull from various parts of the field—going to exactly the depth to which it has been plowed—until, say a wheelbarrow full, has been obtained. Mix this well together, and send about a quart or a pint of it (free from stones) to the chemist. This will represent all of that part of the farm which has been subject to the same cultivation, and is of the same mechanical character. If there are marked differences in the kinds of soil, separate analyses will be necessary.

When an analysis is obtained, a regular debtor and creditor account may be kept with the soil; and the farmer may know by the composition of the ashes of his crops, and the manures supplied, whether he is maintaining the fertility of his soil.

Prof. Mapes once purchased some land which could not produce corn at all, and by applying only such manures as analysis indicated to be necessary, at a cost of less than $2 per acre, he obtained the first year over *fifty bushels of shelled corn per acre.* The land has since continued to improve, and is as fertile as any in the State. It has produced in one season a sufficient crop of cabbages to pay the expense of cultivation, and over $250 per acre besides, though it was apparently *worthless* when he purchased it.

These are strong facts, and should arouse the farmers of the whole country to their true interests. Let them not call teachings of science "bookfarming," but "prove all things—hold fast that which is good."

Plowing:

In former numbers, we have publishe much in regard to the soil, its fertilizatio mechanical and chemical character, pulverization; manures, their preparation preservation and proper application, an now, while the crops are growing, we mak some selections relative to their cultivation.—Ed. N. C. Planter.

The kind of plow used in cultivating th surface-soil must be decided by the kind o oil. This question the practical, *obser- ing* farmer will be able to solve.

As a general rule, it may be stated that e plow which runs the *deepest.* with the me amount of force, is the best.

We might enter more fully into this mat- r but for want of space.

The advantages of *deep plowing* cannot e too strongly urged.

The statement that the *deeper* and the *ner* the soil is rendered, the more pro- uctive it will become, is in every respect ue, and which no single instance will ntradict.

It must not be inferred from this, that e would advise a farmer, who has always lowed his soil to the depth of only six in- es, to double the depth at once. Such practice in some soils would be highly jurious, as it would completely bury the ore fertile and better cultivated soil, and ing to the top one which contains no or- nic matter, and has never been subject atmospheric influences. This would, rhaps, be so little fitted for vegetation at it would scarcely sustain plants until eir roots could reach the more fertile rts below. Such treatment of the soil urning it upside down) is excellent in *rden* culture, where the great amount of anures applied is sufficient to overcome e temporary barrenness of the soil, but is not to be recommended for all *field* ltivation, where much less manure is em- oyed.

The course to be pursued in such cases to *plow one inch deeper each year.* By is means the soil may be gradually deep- ed to any desired extent. The amount uncongenial soil which will thus be ought up, is slight, and will not inter- re at all with the fertility of the soil, hile the elevated portion will become, in e year, so altered by exposure, that it ill equal the rest of the soil in fertility.

Often where lime has been used in ex- ss, it has sunk to the sub-soil, where it re- ains inactive. The slight deepening of e surface plowing would mix this lime th the surface-soil, and render it again eful.

When the soil is light and sandy, resting a heavy clay sub-soil, or clay on sand, e bringing up of the mass from below will prove the texture of the soil.

As an instance of the success of deep owing, we call to mind the case of a farmer in N. Carolina, who had a field which had yielded about twenty-five bushels of corn per acre. It had been cultivated at ordinary depths. After laying it out in eight step lands (24 feet), he plowed it at all depths from five to ten inches, on the different lands, and sowed oats evenly over the whole field. The crop on the five inch soil was very poor, on the six inch rather better, on the seven inch better still, and on the ten inch soil it was as fine as ever grew in this State; it had stiff straw and broad leaves, while the grain was also much better than on the remainder of the field.

There in an old anecdote of a man who died, leaving his sons with the information that he had buried a pot of gold for them somewhere on the farm. They commenced digging for the gold, and dug over the whole farm to a great depth without finding the gold. The digging, however, so enriched the soil that they were fully compensated for their disappointment, and became wealthy from the increased produce of their farm.

Farmers will find, on experiment, that they have gold buried in their soil, if they will but dig deep enough to obtain it. The law gives a man the ownership of the soil for an indefinite distance from the surface, but few seem to realize that there is *another farm* below the one they are cultivating, which is quite as valuable as the one on the surface, if it were but properly worked.

Fall plowing, especially for heavy lands, is a very good means of securing the action of the frosts of winter to pulverize the soil. If it be a stiff clay, it may be well to throw the soil up into ridges (by ridging and back furrowing), so as to expose the largest possible amount of surface to the freezing and thawing of winter. Sandy soils should not be plowed in the fall, as it renders them too light.

Sub-Soil Plowing.

The *sub-soil plow* is an implement differing in figure from the surface plow. It does not turn a furrow, but merely runs through the sub-soil like a mole—loosening and making it finer by lifting, but allowing it to fall back and occupy its former place. It usually follows the surface plow, entering the soil to the depth of from twelve to eighteen inches below the bottom of the surface furrow.

The sub-soil plows first made raised the whole soil about eight inches, and required very great power in their use, often six, eight, or even ten oxen. The mapes plow, raising the soil but slightly, may be worked with much less power, and produces equally good results. It may be run to its full depth in most soils by a single yoke of oxen.

Of course a motion in the soil of but one and a half inches is every slight, but it is sufficient to move each particle from the one next to it which, in dry soils, is all that is necessary. Whoever has examined a pile of cannon-balls must have observed that at the points where they touch each other, there is a little rust. In the soil, the same is often the case. Where the particles touch each other, there is such a chemical change produced as renders them fit for the use of plants. While these particles remain in their first position, the changed portions are out of the reach of roots; but, if, by the aid of the sub-soil plow, their position is altered, these parts are exposed for the uses of plants. If we hold in the hand a ball of dry clay, and press it hard enough to produce the least motion among its particles, the whole mass becomes pulverized. On the same principle, the subsoil plow renders the compact lower soil sufficiently fine for the requirements of fertility.

Notwithstanding its great benefits on land, which is sufficiently dry, sub-soiling cannot be recommended for wet lands; for, in such cases, the rains of a single season would often be sufficient to entirely overcome its effects by packing the subsoil down to its former hardness.

On lands not overcharged with water, it is productive of the best results, it being often sufficient to turn the balance between a gaining and a losing business in farming.

It increases nearly every effect of under-draining; especially does it overcome drought, by loosening the soil, and admitting air to circulate among the particles of the sub-soil and deposit its moisture on the surface of the soil.

It deepens the surface-soil, because it admits roots into the sub-soil where they decay and leave carbon, while the circulation of air so affects the mineral parts, that they become of a fertilizing character. The deposit of carbon gives to the subsoil the power of absorbing, and retaining the atmospheric fertilizers, which are more freely presented, owing to the fact that the air is allowed to circulate with greater freedom. As a majorty of roots decay in the surface-soil, they there deposit much mineral matter obtained from the sub-soil.

The retention of atmospheric manures is more fully ensured by the better exposure of the clayey portions of the soil.

Those manures which are artificially applied, by being plowed under to greater depths, are less liable to evaporation, as, from the greater amount of soil above them their escape will more probably be arrested; and, from the greater prevalence of roots, they are more liable to be taken up by plants.

The sub-soil often contains matters which are deficient in the surface-soil. By the use of the sub-soil plow, they are rendered available.

Sub-soiling is similar to under-draining in continuing the tillering of grasses, and in getting rid of the poisonous excrementitious matter of plants.

When thesub-soil is a thin layer of clay on a sandy bed the sub-soil plow, by passing through it, opens a passage for water, and often affords a sufficient drainage.

If plants will grow better on a soil six inches deep than on one of three inches, there is no reason why they should not be benefited in proportion, by disturbing the soil to the whole depth to which roots will travel—which is usually more than two feet. The minute rootlets of corn and most other plants, will, if allowed by cultivation, occupy the soil to the depth or thirty-four inches, having a fibre in nearly every cubic inch of the soil for the whole distance. There are very few cultivated plants whose roots would not travel to a depth of thirty inches or more. Even the onion sends its roots to the depth of eighteen inches when the soil is well cultivated.

The object of loosening the soil is to admit roots to a sufficient depth to hold the plant in its position—to obtain the nutriment necessary to its growth—to receive moisture from the lower portions of the soil—and, if it be a bulb, tuber, or tap, to assume the form requisite for its largest development.

It must be evident that roots, penetrating the soil to a depth of two feet, anchor the plant with greater stability than those which are spread more thinly near the surface.

The roots of plants traversing the soil to such great distances, and being located in nearly every part, absorb mineral and other food, in solution in water, only through the *spongioles at their ends.* Consequently, by having these ends in *every part* of the soil, it is *all* brought under contribution, and the amount supplied is greater, while the demand on any particular part may be less than when the whole requirements of plants have to be supplied from a depth of a few inches.

The ability of roots, to assume a natural shape in the soil, and grow to their largest sizes, must depend on the condition of the soil. If it is finely pulverized to the whole depth to which they ought to go, they will be fully developed; while, if the soil be too hard for penetration, they will be deformed or small. Thus a carrot may grow to the length of two and a half feet, and be of perfect shape, while, if it meet in its course at a depth of eight or ten inches a *cold, hard* sub-soil, its growth must be arrested, or its form injured.

Roots are turned aside by a hard sub-soil, as they would be if received by the surface of a plate of glass.

Add to this the fact that cold, impenetrable sub-soils are *chemically* uncongenial to vegetation, and we have sufficient evidence of the importance, and in many cases the absolute necessity of sub-soiling and under-draining.

It is unnecessary to urge the fact that a garden soil of two feet is more productive than a field soil of six inches; and it is certain that proper attention to these two modes of cultivation will in a majority of cases make a garden of the field—more than doubling its value in case of working, increased produce, certain security against drought, and more even distribution of the demands of the soil—while the outlay will be immediately repaid by an increase of crops.

The sub-soil will be much improved in its character the first year, and a continual advancement rendered in time equal to the original surface-soil, and extending to a depth of two feet or more.

The sub-soil plow is coming rapidly into use. There are now in the country more foundries casting sub-soil plows than there were sub-soil plows in the State six years ago. The implement has now, as well as in many other places, ceased to be a curiosity; and the man who now objects to its use, is classed with him who shells his corn on a shovel over a half-bushel, instead of employing an improved machine, which will enable him to do more in a day than he can do in the "good old way" in a week.

Had we space we might, give many instances of the success of sub-soiling, but the agricultural papers of the present day (at least one of which every farmer should take and we recommned the North Carolina planter) have so repeatedly published its advantages, that we will not do so.

In no case will its use be found any thing but satisfactory, except in occasional instances where there is some chemical difficulty in the sub-soil, which an analysis will tell us how to overcome.

As was before stated, its use on wet lands is not advisable until they have been under-drained, as excess of water prevents its effects from being permanent.

Rolling.

Rolling the soil with a large roller, arranged to be drawn by a team, is in many instances a good accessory to cultivation. By its means, the following results are obtained:

1. The soil at the surface is pulverized without the compacting of the lower parts, the area of contact being large.
2. The stones on the land are pressed down so as to be out of the way of the scythe in mowing.
3. The soil is compacted around seeds after sowing in such a manner as to exclude light and to *touch* them in every part, both of which are essential to their germination and to the healthfulness of the plants.
4. The soil is so compacted at the surface, that it is less frequented by *grubs*, etc., than when it is more loose.
5. When the soil is smoothed in this manner, there is less surface exposed for the evaporation of water with its cooling effect.
6. Light sandy lands by being rolled in the fall, are rendered more compact, and the loosening effects of frequent freezing and thawing are avoided.

Although productive of these various effects, rolling should be adopted only with much care, and should never be applied to very heavy lands, except in dry weather when lumpy after plowing, as its tendency in such cases would be to render them still more difficult of cultivation. Soils in which air does not circulate freely, are not improved by rolling, as it presses the surface-particles still more closely together, and prevents the free admission of the atmosphere.

If well *under-drained*, a large majority of soils would doubtless be benefited by a judicious use of the roller.*

Mulching

Mulching (called Gurneyism in England) consists in covering the soil with salt hay, litter, seaweed, leaves, spent tanbark, chips, or other refuse matter.

Every farmer must have noticed that, if a board or rail, or an old brush-heap be removed in spring from soil where grass is growing, the grass afterwards grows in those places much larger and better than in other parts of the field.

This improvement arises from various causes.

1. The evaporation of water from the soil is prevented during drought by the shade afforded by the mulch; and it is therefore kept in better condition, as to moisture and temperature, than when evaporation goes on more freely. This condition is well calculated to advance the chemical changes necessary to prepare the matters—both organic and mineral—in the soil for the use of plants.

2. By preventing evaporation, we partially protect the soil from losing ammonia from decaying organic matter.

3. A heavy mulch breaks the force of rains, and prevents them from compacting the soil, as would be the result, were no such precaution taken.

4. Mulching protects the surface-soil from freezing as readily as when exposed, and thus keeps it longer open for the admission of air and moisture. When unprotected, the soil early becomes frozen; and all water falling, instead of entering as it should do, passes off on the surface.

5. The throwing out of winter grain is often prevented, because this is due to the freezing of the surface-soil.

6 Mulching prevents the growth of some weeds, because it removes from them the fostering heat of the sun.

Many of the best nursery-men keep the soil about the roots of young trees mulched continually. One of the chief argument for this treatment is, that it prevents th removal of the moisture from the soil an the consequent loss of heat. Also, that i keeps up a full supply of water for the use of the roots, because it keeps the soil coo and causes a deposit of dew.

7. It also prevents the "baking" of th soil, or the formation of a crust.

It is to be recommended in nearly a cases to sow oats very thinly over land intended for winter fallow after the removal of crops, as they will grow a little before being killed by the frost, when the will fall down, thus affording a very beneficial mulch to the soil.

When farmers spread manure on the fields in the fall to be plowed under in th spring, they benefit the land by the mulching more than by the addition of fertilizin matter, because they give it the protectin influence of the straw, etc., while they lo much of the ammonia of their manure b evaporation. The same mulching mig be more cheaply done with leaves, or oth refuse matter, and the ammonia of the m nure made available by composting wi absorbents.

It is an old and true saying that "sno is the poor man's manure." The reas why it is so beneficial is, chiefly, that acts as a most excellent mulch. It co tains no more ammonia than rain-wat does; and, were it not for the fact that protects the soil against loss of heat, a produces other benefits of mulching, would have no more advantageous effe

The severity of winters at the North partially compensated by the long durati of snow.

It is a well known fact that when the is but little snow in cold countries, whe is very liable to be *winter killed*. T same protection is afforded by artific mulching.

This treatment is peculiarly applica to the cultivation of flowers, both in p and in beds out of doors. It is almost dispensable to the profitable production strawberries, and many other garden cro such as asparagus, rhubarb, etc. Ma say that the best treatment for trees is put stones about their roots. This is sim *mulching* them, and might be done more eaply by the use of leaves, copying the tion of nature in forests; for, unless ese stones be removed in spring, they ill sink and compact the soil in part du-ng open weather.

Weeding.

If a farmer were asked—what is the use *weeds?* he might make out quite a list their benefits, among which might be me of the following:—

1. They shade tender plants, and in a easure serve as a mulch to the ground.

2. Some weeds, by their offensive odor, ive away many insects.

3. They may serve as a green crop to plowed into the soil, and increase its or-nic matter.

4. *They make us stir the soil*, and thus crease its fertility.

t ll, while thinking out these excuses weeds, he would see other and more gent reasons why they should not be al-wed to grow.

1. They occupy the soil to the disad-ntage of crops.

2. They exclude light and heat from ltivated plants, and thus interfere with eir growth.

3. They take up mineral and other mat-s from the soil, and hold them during growing season, thus depriving crops their use.

It is not necessary to argue the injury ne by weeds. Every farmer is well con-ced that they should be destroyed, and best means of accomplishing this are of greatest importance.

In the first place, we should protect our-ves against their increase. This may be ne:—

By decomposing all manures in com-st, whereby the seeds contained will be led by the heat of fermentation; or, if bushel of salt be mixed through each d of compost (as before recommended), will kill seeds as well as grubs,—

By hoeing, or, otherwise, destroying wing weeds before they mature their ds, and

By keeping the soil in the best chemi- condition.

This last point is one of much impor-ce. It is well known that soils deficient otash, will naturally produce one kind of plants, while soils deficient in phosphoric acid will produce plants of another species, etc. Many soils produce certain weeds which would not grow on them if they were made chemically perfect, as indicated by analysis. It is also believed that those weeds, which naturally grow on the most fertile soils, are the ones most easily destroyed. There are exceptions (of which the Thistle is one), but this is given as a general rule.

By careful attention to the foregoing points, weeds may be kept from increasing while those already in the soil may be eradicated in various ways, chiefly by mechanical means, such as hoeing, plowing, etc.*

Prof. Mapes says that six bushels of salt annually sown broadcast over each acre of land, will destroy very many weeds as well as grubs and worms.

The *common hoe* is a very imperfect tool for the purpose of removing weeds, as it prepares a better soil for, and replants in a position to grow, nearly as many weeds as it destroys.

The *scuffle-hoe* (or push-hoe) is much more effective, as, when worked by a man walking backwards, and retiring as he works, it leaves nearly all of the weeds on the surface of the soil to be killed by the sun. When used in this way, the earth is not trodden on after being hoed—as is the case when the common hoe is employed.

This treading, besides compacting the soil, covers the roots of many weeds, and causes them to grow again.

Much of the labor of weeding usually performed by men, might be more cheaply done by horses. There are various implements for this purpose, some of which are coming, in many parts of the country, into very general use.

One of the best of these is the *Langdon Horse Hoe*, which is a shovel shaped plow, to be run one or two inches deep. It has a wing on each side to prevent the earth from falling on to the plants in the rows. At the rear, or upper edge, is a kind of rake or comb, which allows the earth to pass through, while the weeds pass over the comb and fall on the surface of the soil to be killed by the heat of the sun. It is a simple and cheap tool, and will perform the work of twenty men with hoes. The hand hoe will be necessary only in the rows.

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* It is possible that the excrementitious matter thrown out by some plants may be sufficiently destructive to other kinds to exterminate them from the soil—thus, farmers in Maine say that a single crop of turnips will entirely rid the soil of *witch grass*. This is, undoubtedly, the effect of the excrementitious matter of the turnips. This subject is one of practical importance, and demands close investigation by farmers, which may lead to its [illegible] reduced to a system.

There is much truth in the following proverbs:

"A garden that is well kept, is kept easily."

"You must conquer weeds, or weeds will conquer you."

It is almost impossible to give a *recapitulation* of the matters treated in this section, as it is, itself, but an outline of subjects which might occupy our whole book. The scholar and the farmer should understand every principle which it contains, as well as they understand the multiplication table; and their application will be found, in every instance, to produce the best results.

The two great rules of mechanical cultivation are—

THOROUGH UNDER-DRAINING.

DEEP AND FREQUENT DISTURBANCE OF THE SOIL.

General Considerations on Manures.

BY SAMUEL W. JOHNSON, *Chemist of the Connecticut State Agricultural Society.*

1. *What are manures?*

Manures are substances which are incorporated with the soil, for the purpose of supplying some deficiency in the latter.—However numerous and different may be the materials which assit the growth of plants, judging them by their origin, external characters and names, chemistry has in late years demonstrated that they all consist of only about a dozen forms of matter, which will be specified below.

2. *How manures act.*

Manures may act in three distinct ways.

I. *They may enter the plant as direct nutriment.* Carbonic acid, water, ammonia, or nitric acid, sulphuric acid, phosphoric acid, silica, oxyd of iron, chlorine, lime, magnesia, potash and soda, are the elements of vegetable nutrition—the essential plant-food.

In fertile soil all these materials are accessible to the plant. If one of them be absent, the soil is barren; if a substance that contains the missing body be applied to the soil, it makes the latter fertile.

II. *Manures may act partly as solvents, or absorbents*, and thus indirectly supply food to the plant, e. g., lime, gypsum, salts of ammonia, &c.

Soils are infertile, not only from the absence or deficiency of some one or more of the above-named forms of plant-food, but also for other reasons. The food of the plant must be soluble in water, so as thus to be transmitted into the plant as rapidly as needed. Soils are often unproductive, because the stores of plant-food they contain are locked up in insoluble forms. Lime, guano, the products of the decay of vegetable matters, often fertilize a field merely by their solvent action on the soil. Gypsum acts as an absorber or fixer of ammonia.

III. *Manures improve the physical character of the soil*,—i. e., make it warmer, lighter, or heavier, more or less retentive of moisture, &c. Such are some manures that are often applied in large quantity, as lime, marl and muck.

A soil is often barren, not because it has no supplies of nutriment for the plant, neither for the reason that those supplies are insoluble; but because the soil itself is so wet or dry, so tenacious, impenetrable, or so light and shifting, that vegetation fails to find the physical conditions of its growth and perfection.

Almost all our ordinary fertilizers exercise, to a greater or less degree, all these effects. Thus lime, on a clay soil, may, 1st mechanically destroy the coherence and tenacity of the clay, and give it the friability of a loam; 2d, chemically decompose the clay, making potash, soda, ammonia, &c., soluble; and, 3d, be directly absorbed and appropriated by the plant.

3. *Exhaustion of the soil by cropping, and renovation by weathering.*

Under cultivation, there is removed from the soil by each crop a greater or less quantity of plant-food. The stores of nutriment in the soil thus continually become smaller and smaller.

By the action of the atmosphere (weathering), assisted by pulverization of the soil (tillage), the insoluble matters of the soil are gradually made soluble and available to vegetation.

There is thus constantly going on in the soil and exhausting, and as constantly, a renovating process. In most soils under ordinary cultivation, the exhaustion, or removal of plant-food, proceeds more rapidly than the supply by weathering. Such soils, therefore, tend to become unproductive.— In a few cases, the solution of the materials of the soil itself goes on so rapidly that there is always present in them an excess of all the matters requisite to nourish vegetation. These soils are inexhaustible.

To assist in maintaining the first class of soils in a state of productivness, manures are employed.

4. *Comparative agricultural value of different fertilizers.*

It is obvious, from the foregoing considerations, that manures are required to exercise very different functions in different cases, according to the character of the soil, as determined by its origin and by its previous treatment. The soil itself is constantly changing under culture, so that what is useful on my neighbor's soil, that has been tilled and cropped for twenty years, may be quite valueless on mine which is just reclaimed from the forest. What benefits my soil this year may be of no perceptible advantage next year.

In how far manure is needed for the special purpose of supplying the soil with food for vegetation, it is often difficult to decide. If a new and good soil is repeatedly cropped until it ceases to yield remunerative returns, it may be that addition of some one substance, lime, or potash, or sulphuric acid, will restore its fertility. It more often happens that *several* bodies are deficient; but *what* is deficient can only be certainly learned by actual trial. In any special case that substance is most valuable as a manure, (in so far as the *direct* nutrition of the plant is concerned,) which is most deficient in the soil in accessible form.

As regards the indirect action of manures, in virtue of their absorbent or solvent powers, and as regards their effects in meliorating the texture and other physical characters of the soil, practical men have established certain rules, founded on experience, which it is not needful to recapitulate here.

Thus much is certain: that one fertilizing agent has no absolute and invariable superiority over another, for all are equally indispensable. The superiority that any one manure may be reputed to possess, depends upon circumstances. Circumstances are exceedingly various and continually changing. The reputation and local value of manures is equally various and changing.

In some regions, as in certain districts of Pennsylvania, *lime* is considered the best manure. In numerous localities, *plaster* (sulphuric acid and lime) is depended upon. In some districts, super-phosphate of lime; in others, Peruvian guano is almost exclusively used.

Among the substances essential to vegetation, there are some which almost never fail from the soil. Thus, oxyd of iron and silica are present in every soil. Lime and sulphuric acid may often be wanting. Potash and soda are not unfrequently deficient. Available ammonia and phosphoric acid are likewise often liable to exhaustion.

Ammonia and phosphoric acid, which possess the highest commercial value among fertilizers, have been considered by some whose opinions are of weight in the agricultural world, to possess also a decidedly greater *agricultural* value than other manures. It is asserted that in the growth of certain crops, and in fact those crops which best remunerate the farmer, these substances are most rapidly exhausted from the soil. Now it is undoubtedly true, that on the soils in certain districts, and in certain courses of cropping, the application of ammoniacal and phosphatic manures produces the most striking results; yet it is by no means proved, or even probable, that on the whole, all soils, and all systems of cropping included, these bodies are oftener lacking, or oftener and more permanently useful, than some of the other fertilizing substances.

5. *What manures are most often and most generally useful?*

While we cannot accord to any simple manure, or to any single ingredient of a manure, a universal fertilizing superiority, it is true that some manures are more useful than others, on account of their compound nature. The more ingredients a manure can supply to vegetation, the more useful it is. Stable manure is the universal and best fertilizer, because it contains every thing which can feed the plant.— Swamp muck, straw, and vegetable refuse generally, are of similar character. Fertilizers, like lime, plaster, salt, &c., which contain but a few ingredients, cannot in general be depended upon for continuously maintaining the fertility of the soil.

6. *Uses of special or partial manures.*

Special manures, i. e., manures which contain some one or few ingredients, are of use, very rarely, as the farmer's chief reliance, but often as adjuncts to stable manure. Several special manures may often be so combined as to make an effectual substitute for stable manure. In high-farming, and in market gardening, and generally where circumstances admit of raising the most exhausting crops without fallow, laying down to grass, or ratotion of any sort, special manures are most advantageously employed. In ordinary mixed farming, they are useful in assisting to reclaim or improve poor lands; but in the best practice, they play as yet a very subordinate part, unless peculiar circumstances make them extraordinarily cheap.

7. *Comparative commercial value of manures.*—The commercial value of a manure is measured by its price, and may be quite independent of its real agricultural value, though it usually depends considerably on its *reputed* agricultural value. The scarcity of a substance, the cost of preparation and transportation, the demand for it on account of other than agricultural uses—all these considerations of course influence its price. It is commercially worth what the dealer can get for it, so much perbushel or ton.

9. *Valuation of manures.—What substances are to be regarded as commercially important in costly manures.*

In any fertilizer which is sold as high or higher than half a cent a pound, there are but three ingredients that deserve to be taken account of in estimating its value.—These are ammonia, phosphoric acid, and potash. Every thing else that has a fertilizing value may be more cheaply obtained under its proper name. If the farmer needs sulphuric acid he purchases gypsum; if he needs soda, common salt supplies him. Every thing but these three substances may be procured so cheaply, that the farmer is cheated if he pays ten dollars per ton for a manure, unless it contains or yields one or all of these three substances in considerable proportion.

9. *Mechanical condition of manures.*

Nothing is so important to the rapid and economical action of a manure as its existing in a finely pulverized state. All costly fertilizers ought to exist chiefly as fine, nearly impalpable powers, and the coarser portions, if any, should be capable of passing through a sieve of say eight or ten holes to the linear inch. The same immediatebenefits are derived from two bushels of bones rendered impalpably fine by treatment with oil-of-vitriol, ten bushels of bone-dust, and one hundred bushels of whole bones. Fineness facilitates distribution, and economizes capital.

10. *Chemical condition of manures—State of solubility, &c.—Ammonia, potential and actual—Phosphoric acid, soluble and insoluble.*

The solubility of a manure is a serious question to be considered in its valuation. We are accustomed to speak of ammonia as existing in two states, viz: *actual* and *potential.* By actual ammonia, we mean ready-formed ammonia; by potential ammonia, that which will result by decomposition or decay—"that which exists in possibility, not in act." Now the former is almost invariably soluble with ease in water, and is thus readily and immediately available to plants; while the latter must first become "actual" by decay, before it can assist in supporting vegetation.

In Peruvian guano, we have about half of the ammonia ready formed, and easily soluble in water, the remainder exists in the form of uric acid, which yields ammonia by decay in the soil, but may require weeks or months to complete the change. In leather shavings, or woolen rags, the ammonia is all potential, and as these bodies decay slowly, they are of less value than guano as sources of ammonia. Oil-cake, (linseed and cottonseed,) contains much potential ammonia, and in a form that very speedily yields actual ammonia.

We do not know with what precise results the process of the decay of ammonia-yielding bodies is accomplished in the soil. Out of the soil such bodies do not give all their nitrogen in the form of ammonia: a portion escapes in the uncombined state, and thus becomes unavailable.

Phosphoric acid may occur in two different states of solubility; one readily soluble, the other slowly and slightly soluble in water. The former we specify as soluble, the latter as insoluble phosphoric acid. In Peruvian guano we find 3.5 per cent. of soluble phosphoric acid, existing there as phosphates of ammonia and potash. The

maining 10 to 12 per cent. is insoluble,
ing combined with lime and magnesia.
most other manures, genuine superphos-
ates excepted, the phosphoric acid is in-
luble.

Among those phosphates which are here
nked as insoluble, there exist great dif-
ences in their availability, resulting from
eir mechanical condition. The ashes of
nes, and the porous rock-guano when
ely ground, exert immediate effect on
ps, while the dense, glassy, or crystal-
ed phosphorite of Hurdstown, N. J., and
fossil bones (so-called coprolites of Eng-
d,) are almost or quite inert unless sub-
ted to treatment with oil-of-vitriol.

II. *The reasonable price of phosphoric*
d, ammonia, and potash.

I. *Insoluble phosphoric acid.* There are
eral substances now in market which, as
tilizers, are valuable exclusively on ac-
nt of their content of phosphoric acid;
ich, moreover, are at present the chea-
st sources of this substance that possess
degree of fineness proper to an active
tilizer. These substances are the phos-
atic guanos, (Columbian and American
ano,) and the refuse bone-black of sugar
ineries. From them we can easily cal-
ate the present lowest commercial value
phosphoric acid. If we divide the price
ton of Columbian guano, $35, by the
mber of pounds of phosphoric acid in a
, which, at 40 per cent., amounts to 800
nds, then we have the price of one
nd at nearly 4½ cents.

Refuse bone-black may be had for $30
ton; it usually contains 32 per cent.
phosphoric acid. The same division as
ve gives us 4¾ cents as the cost of phos-
ric acid per pound.

n this report I shall adopt the average
hese figures, viz: 4½ cents, as the rea-
able price of insoluble phosphoric acid.
Phosphoric acid is much cheaper in
shed bones; but this material is not in
itable state of division to serve as the
s of a fair estimate.

I. *Soluble phosphoric acid.* This is
rly always the result of a manufacturing
cess. Professor Way, chemist to the
al Agricultural Society of England,
mates its worth at 10½ cents per pound.
Voelcker, of the Royal Agricultural
lege of England, and Dr. Stoeckhardt,
distinguished Saxon Agricultural Chem-
reckon it at 12½ cents per pound. They have deduced these prices from that of the best commercial superphosphates. In this report the price will also be assumed at 12½ cents. This, I believe, is considerably more than it is really worth, but it is probably the lowest rate at which it can now be purchased.

III. *Actual ammonia.* The cheapest commercial source of this body is Peruvian guano. Although it contains several per cents of potential ammonia, yet the latter is so readily converted into actual ammonia, that the whole effect of the manure is produced in one season, and therefore we may justly consider the whole as of equal value with actual ammonia.

Good Peruvian guano contains:

2 per cent., or 40 lbs. per ton of potash.
3 " 60 " " soluble phospho. acid.
12 " 240 " " insoluble " "
and yields
16 " 320 " " ammonia.

If we add the values of the potash, (see next page,) and of the phosphoric acid, soluble and insoluble, and subtract the same from the price of guano, we shall arrive at the worth of the ammonia—as follows:

40x4=$1.60; 60x12½=$7.50; and 240x4½=$10.80; total, $19.90.

$65.00—$19 90=$45.10 the value of 320 lbs of ammonia.

$45.10—320=14 cents nearly, the value of one pound.

This price, 14 cents per pound, will be employed in this report.

IV. *Potential ammonia.* The value of this varies so greatly, being, for example, as uric acid in guano, not inferior to actual ammonia, while in woolen rags it is not worth more than one-half as much, that we can fix no uniform price, but must decide what it shall be, in each special case, separately.

V. *Potash.* The value of potash is difficult to estimate, because it may vary exceedingly according to circumstances.—Wood ashes are its chief sources; these are poor or rich in potash according to the kind of tree that yelds them, and the soil on which it has grown. It may vary from five to twenty per cent. Stockhardt, who estimates the value of ammonia at twenty cents, makes potash worth four cents per pound. The price of potashes can not serve as a guide, for they are never used for agricultural purposes. Four cents is certainly high enough for this country, if it is correct for Germany.

12. *Potash may be usually neglected.*

Most concentrated manures contain very little or no potash. In guano it rarely exceeds three per cent. Superphosphate of lime can contain none of consequence.—Potash cannot be economically added to manufactured manures, because nearly pure potash, or even the raw material from which it is extracted, viz.: wood ashes, has a higher commercial value for technical than for agricultural purposes. Besides, potash is not *generally* deficient in soils, and therefore farmers do not wish to pay for it as an ingredient of costly manures. It is only when a manure is professedly sold as containing much potash, that this ingredient deserves to be taken account of in its valuation.

13. *Computing the money-value of concentrated manures.*

In what immediately precedes, is contained the data for calculating *approximatively* the price that can be afforded by a high-priced manure, if we have before us the results of a reliable analysis. The actual calculation is very easy, and has been illustrated already in deducing the value of ammonia from Peruvian guano. We give here a *resume* of the prices adopted in this report, viz.:

Potash, per pound	4	cents
Insoluble phosphoric acid, per pound,	4½	"
Soluble " " "	12½	"
Actual, and some forms of potential ammonia,	14	"

As a further example of the calculation, here may follow the details of the valuation of a superphosphate of lime. Analysis gave the following per centage:

Actual ammonia,	2.39,	say	2.4
Potential	1.06,	"	1.0
Soluble phosphoric acid,	2.56,	"	2.6
Insoluble,	32.98,	"	23 6

Multiplying the per centage of each ingredient by its estimated price, and adding together the products thus obtained, gives the value of one hundred pounds; this taken twenty times, gives us the worth of a ton of two thousand pounds.

In the case before us, the quantity of potential ammonia is so small that we may reckon it with actual ammonia without materially influencing the result. Thus,

2.4x1.0=3.4; 3.4x 14 = .48, valuc of ammonia in 100 lbs.
2.6x12½= .33, value of soluble phos acid in 100 lbs.
2.3x04½=$1.03, value of insol. phospho. acid i 100 lbs.
$1.84, total value of 2 100 lbs.
$36.80, value of on ton.

It is not claimed that this method o valuation is more than rough and approximate. Usually the price demanded is mor than that obtained by calculation. In cas of the superphosphate just mentioned, th selling price is $45. There is no doubt tha it ought to be better for that money. Th farmer must decide for himself whether h can get the same fertilizing materials mor cheaply. If he cannot, he may purchas such a superphosphate. For *comparin the worth of different fertilizers* this metho of computation is of great value, as will b seen further on, where will be found table giving the calculated values of all the high priced manures that have come into m hands offically, during the last two year

It is but just to mention here, that thi method of estimating the value of fertilizers was first proposed nine years ago b Dr. J. A. Stoeckhardt, Professor of Agricultural Chemistry in the Royal Academ of Agriculture and Foresty, at Tharan near Dresden, in Saxony, and has bee adopted in principle by the chemists of th agricultural societies in Great Britain.

The estimates I made in 1856 wer much lower than those now given. Th price of manures has advanced since tha time, (Peruvian guanos ten dollars pe ton,) and the prices I then proposed fo phosphoric acid were too small. All th estimated values in this report are founde on the prices just given.

14. *Estimation of the value of cheap manures.*

The method of valuation above described is not applicable to cheap manure which contain but little ammonia or pho phoric acid. Their value often depend more upon the mechanical and chemic condition of their ingredients, than upo the quantity of any one. The few man factured manures of this sort, may best t compared with some fertilizer of standar commercial value, viz.: stable manur leached ashes, &c. Under the head Po drette, examples will be given.

Southern Planter.

pplying Plant Food at the Surface.

n the reported discussions that took
ce during the evenings of the late New
rk State Fair, much diversity of opin-
, as to whether manures should be ap-
ed at or below the surface, appears to
e been entertained—some farmers even
tending that the nature of the soil, for
at reason it is difficult to imagine—should
ermine the question. Certainly as long
our manures remain what they are, in
ir properties and proportions, I think it
te doubtful, whether any natural reason
fact consistent with nature, can be ad-
ed that will justify the practice of *bury-*
manure, thus placing its organic parts
ond the reach of the crop, and the bulk
t where it will not improve by the dis-
grating processes that are so much de-
dent upon the free access of atmospher-
lements.

t is a mistake to suppose that we are to
ose nuture, especially as connected with
growth, by art; on the contrary, it is
highest art so to remove obstructions,
place the elements, or such of them as
can manipulate, in the best known po-
n to give nature the fullest and most
ctive scope of action. Hence, when
doubt presents itself, the test that will
e it, and decide it generally, is the
se we propose, contrary to, or in ac-
ance with the course of nature. If the
r, it is right in principle, however de-
ve in arrangements, at all events.

we look about us a little, we find the
ral plant food that produces our gi-
ic swamp timber, and the immense
al growth of the natural grasses on
lands, composed of humus arising from
decay of the annual growth of these,
riably applied or deposited on the sur-
; and that we get larger crops and
th of natural grass, and self-manured
np timper, the result of natural surface
uring, than art has yet been able to
uce. Growth is always by similar
esses; hence the intervention of art
never *change* the matter in which
ts absorb and grow. There can be lit-
uestion of the fact that the mineral or
ganic parts of plants, must be prepared
e influence of heat *at the surface* be-
being available as constituents of
th. Hence, the large supply and de-
ure of mineral matter from the decaying grass and leaves of trees, on the *surface*, teaches us that even these inorganic elements are best applied as a *top* dressing; and that they are much more likely to reach the roots—through which they must re-enter the tree before ascending to the leaves—than would be the case if placed from five to eight inches beneath. And as to the organic parts, all of these derived from manure by any crop, comprising generally fully seven-eighths of the whole bulk—must come to the surface and ascend therefrom in gaseous particles, before feeding the plant through its leaves, or becoming plant food.

Plants have the power of transferring crude mineral matter gradually but certainly, into their own structury; hence it is an illusion of Liebig's to suppose that soils can be exhausted of mineral matter. On the contrary there is—as we all know—frequently too large a proportion of it. Hence the question is not whether it will be exhausted, but how can it be transformed into available plant food. This, I think, can be answered. But it is clear that mineral matters will best promote growth when applied on the top soil, because it must pass thence down on to the top of, and amongst the roots, in its natural descent, whether in solution or by gravitation.

We find the place of separation of the organic from the mineral parts of natural manure, to be on the surface, and that medium—water—that carries the one downwards, and supplies vapor to facilitate the ascent of the other, is applied at the surface.

To suppose that roots have as large a proportion in the active function of feeding the plant generally—I say generally, because the powers of plants vary in this respect—as some seem to imagine, is equivalent to denying that the natural proportions in the formation of plants and trees is not the best. For, admitting that in most growing trees and plants, the branches and stems are nearly equal in surface and bulk to the roots, and not greater, we have further to consider the supplementary or excessive proportion of leaves. The latter have in a vast number of trees and plants, much more surface than roots, stems and branches altogether; showing, as I conceive by the strongest analogy, that plants must derive much the most of their substance by way of their leaves. And I am fident the more this subject is investigated, the more popular surface manuring will become, because it is a principle and a law of nature.—*Country Geutleman.*

Hog Cholera—A Preventive.

Dr Cloud—*Dear Sir* :—As an inquiry is made in your journal for a cure for Hog Cholera, I will give my experience in the matter. If you think it worth publishing, do so, if not, then cast it aside. My neighbors' hogs, with which mine used daily, took the cholera, and I think an average of half of them died. As soon as I discovered they had it, got I some Bluestone and prepared a stand of water in a convenient place, making it smartly blueish. Into this I threw my corn, in the ear, and let it soak about twelve hours, then gave it to my hogs. I occasionally added a little more water and Bluestone, and kept it up as long as the cholera prevailed. The result was, not one of my hogs took the disease.

Taylor county, Ga., 1860. J. S.

Experiments With Guano.

Messrs, Editors ; I have seen several articles in your paper lately, relative to top-dressing land with manure. I tried last fall, in seeding wheat, three different ways in using Peruvian Guano, viz: First, I turned it under with the dagon. Second, got it in with cultivator. Third, top-dressed.

The experiments were on fallowed land, and I find where I turned the guano under with the dagon, the wheat looks a great deal better in every respect than where I used the cultivator; and where I top-dressed, the wheat looks very inferior. I had rather have one hundred pounds of guano turned in with the dagon, than three hundred usedas a top-dressing.

That portion of the land on which I used the dagon and cultivator, I put three hundred pounds per acre, and when I top-dressed I tried both two and four hundred pounds per acre, and find that none of the wheat is near as good as where I used the dagon cultivator.

With a portion of the guano I mixed plaster in the proportion of one-fifth, or to every two bushels of guano I used a half bushel of plaster. I observed that where the plaster was used with the guano, the land seemed to settle to the roots of the wheat, and it started off much sooner than where I used no plaster; and the wheat looks a good deal better, though a portion of the land where I used plaster is naturally much poorer than some where there was not any used.

Wm. J. Bragg.

Agricultural Society.

A meeting of the Cumberland County Agricultural Society was held in the Town Hall on Monday evening last, and was organized by the appointment of John C Smith, Esq., Chairman and John P. McLean Secretary. The object of the meeting was briefly and appropriately explained by the chairman, after which a committee consisting of the following gentlemen, was, on motion, appointed by the chair to prepare measures for carrying out the object of the meeting, viz R. McDanicl,. W. McMillan, J. C. Blocker, C. H. Cofield, and Nei McDougald, who, having retired for a short time, reported the following resolutions, which were unanimously adopted :

Resolved, That we feel a deep interest in the cause of Agriculture and particularly in the counties of Cumberland and Harnett and we will exert ourselves to promote this important and essential branch of industry.

Resolved, That to accomplish this and to create in the public mind an interest adequate to its importance, we will hereafter hold a meeting of the Society regularly on Monday of each County Cour tweek, with a view of forming a closer union of interests among farmers and of eliciting practical and experimental knowledge with regard to the management and improvement of the farm.

Resolved, That we have undiminished confidence in the advantages and utility to the farmer and the citixens generally of our annual Fair, and we take this occasion to remind our farmer friends and the community, that *now is the time* to commence making preparations for the next Fair, and we trust the people of Cumberland and Harnett, prompted by a feeling of pride and love for their native soil, will make a Fair that will be not only creditable to the Agricultural Society, but to this section of the "Old North State."

EDITORIAL.

RALEIGH, JUNE, 1860.

☞ Subscribers receiving the Planter with a ss *mark* opposite their address, are thereby no- ed that the No. thus marked closes the time which they have paid, and unless renewed, the ier will be sent no longer. We earnestly re- st all who find the cross mark on this No. to mptly forward the money for the Planter an- er year, and if possible, send another name a club) along with it.

he cash in advance plan is now adopted by the papers of the country, and we believe our scribers will like it better than the credit sys- ; hence, we have adopted it, and must rigidly ere to it. No one will therefore feel agrieved n he finds his Planter discontinued, if he neg- s to send on money to renew. *All* will be ted alike. We trust, however, all will like us ell, that each will send on his renewal as as he sees the *cross mark.*

Rotation of Crops.

sire of gods and men, with hard decrees,
oids our plenty to be bought with ease,
wills that mortal man, inur'd to toil,
ild exercise, with pains, the grudging soil.
VIRGIL.

Ve have in several of the preceding ibers, published the view of others on subject which forms the caption of article; but believing that a proper, cious and scientific rotation of crops of e importance than any or all other ag- itural subjects put together, in the im- ement of the soil, we cannot refrain giving our readers the benefit of our views, compiled from the best author- on this hitherto too much neglected rtment of husbandry.

was only about the middle of the last ıry, that the rotation of crops began to attract the attention of the agri- ıral world. Anterior to that period earch in vain the works of authors for llusion to such a theme.

evious to that time, writers reciited es or systems of husbandry, good, bad and indifferent, as matters not liable to praise or censure, unconnected with any principles in regard to the arrangement of the farm, or its successful and profitable cultivation. And yet it is on this difficult and important part of the farmer's operations being pursued by the light of science, that much of the profits which he is to derive from his farm for a period of years must depend. Arthur Young, the prince of agriculturalists in his day, viewed this matter in its proper light, and gave it as his opinion, that wherever a very good or very bad system of cultivation is found to prevail, it was more the result of a right or wrong rotation of crops than anything else. No district or part of any country can be well cultivated under improper rotation, while at the same time it is very uncommon to see a bad system of husbandry under such rotations as are good, or conducted by scientific principles. The importance of a scientific investigation of the subject, no farmer of the present day will doubt. The endless variety of soils, situations and localities, render it impossible to establish a rotation applicable to all conditions of lands. Every intelligent farmer then will first understand these, and then in regulating a rotation suitable, he will do well not to disregard the lights reflected by chemical and entomological investigations upon this important subject.

In regard to the general principles on which the proper cultivation of land depends, it is now admitted that some crops exhaust the land more than others; that some by being consumed on the farm (though they do exhaust the soil) return, in being consumed on the farm by live stock, as much or more to the soil than they draw from it. Moreover, that other crops have a tendency, from the mode ot tillage, to aid in the essential destruction of weeds, insects, &c., and in preparing the land for succeeding crops; while different crops, by not requiring such tillage, and being great exhausters when following in succession, not only sterilize the soil but choke up with weeds and grubs. This demonstrates that by a proper and scientific arrangement of these different crops in rotation, land, without resting or lying out, may be improved and kept in a productive condition. The cultivator, in the arrangement of these rotations, must adapt them to the nature of the soil, and other circumstances with which he may be surrounded. He must remember that different kinds of plants require different kinds and proportions of nutritious materials to be drawn from the earth for their growth and support; so, also, they require different situations and character of soil for their successful maturity.

Experience has shown, and it is now an admitted fact by every intelligent farmer, that certain crops never do well two or more seasons on the same land; but we do not mean to say that this is the case with every kind of crop. Certain crops, not very exhausting in their growth, may be continued on the same land for a period of seasons without much injury to the land. These are crops which throw out lateral roots or fibres just below the surface of the ground, and which are supported in part from the atmosphere. All crops with deep, long tap roots are exhausting, and two crops of them should not be planted on the same land two seasons successively. Any crop after awhile will tire on the same land. Some alteration is necessary. Every well informed Pomologist, with his quantum sufficient of manurial composts, avoids planting a tree where one of the same species has preceded it.

Now, the philosophy of this phenomenon must be understood. It has for years engaged the attention of the most scientific agriculturists and distinguished chemists. By them it has been examined and considered in two different points of view. First, it has been ascertained by analysis, that as each plant possesses certain properties or constituent parts, which it deposits on the soil while growing—properties noxious to other plants of its own species—it follows that the same plant cannot prosper on the same soil, until these properties imparted to the soil by this plant are entirely decomposed and removed by other plants of a different species. This may be startling doctrine to some, but in support of the truth of it we will only adduce the well known fact that the water in which bulbs or roots have been raised or stood, will not support other bulbs or roots of the same species; yet still, this same impure water, made so by these bulbs or roots, is found to be better than clear, pure water for vegetables, roots or bulbs of another species. How mysterious the laws of the vegetable kingdom. There are many old farmers living, who know that a young orchard of apple trees will not flourish on ground which had previously produced an orchard before, until all the old stumps are dug up, the roots entirely rotted and decomposed; not because the strength of the land has been exhausted by the growth o the old trees, it may be highly fertile, bu simply because the old trees, like the roots or bulbs raised in water, have imparted to the land something noxious to their own species, which must be eradicated by time or some other plant, between which and the old trees no relation exists.

A knowledge of the laws of vegetabl physiology discloses the fact that certai plants and trees are mutually fertilizin neighbors. In Italy the farmers plant th elm as a companion and fertilizer of th vine; and it is well known that the cor flower will only flourish in the corn field it will not grow elsewhere. How do yo account for these facts? This remarkabl phenomenon is attributed by the knowin nes to a certain peculiarity of some soils, hich utterly defies the secretory powers f plants. Some lands in the United States ave yielded excellent wheat crops for venty years successively. In England the lluvial soils of the valley of the Thames ave produced alternate crops of wheat and eans from time immemorial; and by the pplication of manure, the potato grounds n the vicinity of London yield abundant rops for a number of years. There are ifficulties in the way of the solution of the ase. Notwithstanding, we reassert the eneral proposition, that the same crop r plant will not flourish or do well on he same field for a series of years.—The cases cited above must be considered s exceptions to the general rule, and atributable to a certain peculiarity of the oil. Upon what principle, then, in the egetable kingdom do we rest the truth of our proposition?

The disadvantages with which a crop ollows another of the same kind for a number of years, and which establishes the neessity of a rotation, must be accounted for by supposing that every kind of plant, grain or fruit crop, absorbs from the soil, thereby exhausting it of some peculiar and essential ingredient; and it is, therefore, only after a lapse of time, when that ingredient is restored by the application of manure, or rest, that the same plant can be successfully cultivated on the same soil. This is the true theory, plausible, probable, and affords the only satisfactory explanation of the well known fact, that the same crop will not flourish on the same land for any ength of time.

Every clover grower is familiar with the fact, that certain soils on which red clover has been successfully grown once in four years, will now only yield a profitable crop of the same plant, red clover, once in eight or twelve years. The excretory powers of the plant, in this instance, afford no satisfactory explanation of the why and wherefore; for, according to the theory that the plant imparts to the soil some quality noxious to its own species, the excretory matters which were absorbed by other plants in the course of four years, should do so now as formerly. But when we come to learn that soils once productive of red clover are now reluctant to perform that office, are totally destitute of sulphate of lime, (gypsum,)—that every average crop contains from 150 to 200 pounds per acre of that salt (gypsum)—and that by applying to the land the same quantity of this fertilizer contained in the clover grown on it, that then the land will again produce the same crop once in four years; the conclusion to which we must arrive is apparent, viz: that the clover had exhausted the land of an ingredient essential to its production, which needed to be restored to enable the land again to produce clover equal to its former crop.

We will adduce another instance in favor of our theory: Marine plants will only grow successfully in inland situations when common salt is applied to the soil. Phosphate of lime is essentially necessary to the vigorous growth of all small grains. The sun-flower cannot be obtained in perfection on any soil without the aid of salt-petre.

Independent of all these, there are other facts, well known to every intelligent agriculturist, which establish the truth of our theory. Every cultivator of the soil is aware that by cutting his crops in the green state, his land is not so much exhausted as when the crops are allowed to mature and ripen their seeds. If it be a fact that the plant, when fully matured and perf ripe, contains a larger proportion of s or earthy matter, than when in a g growing, unripe state, it further ten establish the theory—that it is th straction from the soil by the plant of substance or property, which exhaust renders it incapable to support the same crop to the same extent. Chemical investigation establishes this fact, and until it is superseded by some other philosophy of which we have not dreamed, it must be adopted.

The evidence in favor of the exhaustion of the soil by the absorption of the plants, is much stronger than that in support of the excretory mode of explaining this phenomenon. We cannot understand how any plant can impart to the soil any property noxious to another plant of the same species. While it may be conceded that a plant may be continued on the same soil, until by exhaustion it deprives the soil of some ingredient necessary to its production, yet the same soil may produce a different plant not requiring this ingredient in perfection. We have the authority of Sir Humphrey Davy in favor of the exhaustion theory, for explaining the reluctance with which a crop grows for several years successively on the same land. Rotation of all kinds favors the production of vegetation—change of soil, of seed, of the course of cropping, of manure, &c. The adaptation of one crop to prepare the ground for another and different crop, is well understood by every good farmer.

The general composition of plants is very analagous; yet the specific difference in the products of many of them, establish the fact beyond all controversy, that they do require and must derive different materials or properties from the soil, and those peculiar properties thus abstracted must be returned to the land before it will reproduce the same plant as well as before. In support of this theory we have the high authority of Prof. Liebig; in his work on organic chemistry; he remarks: " It is evident that two plants growing beside each other will mutually injure one another, if they withdraw the same food from the soil." On the contrary, plants will thrive beside each other when the substances necessar to their support which they extract fro the soil are of different kinds. On a soi which contains potash, wheat and tobacc may be raised in succession, because tobacco does not require phosphates. Salt are invariably present in wheat, but requires only alkalies and food containin nitrogen. An analysis of these plant show this fact. In further support of ou theory, we will add the commanding testimony of George Sinclair. He remarks " A plant impoverishes the soil in proportion to the weight of vegetable matter i produces on a given space of ground."

Rotation of crops also has the effect o preventing the increase of the predator insects which prey upon the crops, by removing the food of these vermin. To prevent the deprivation of soil, and improv its productive capacity, a rotation of crop is indispensable. The particular syste of rotation to be adopted must vary wit localities and peculiarities of climate an soil.

The old opinion, that after culture fo one or more years, it was necessary to allow the land to remain the same length o time idle, in order that the soil might hav time to recuperate, has long been exploded The received opinion now is, that with judicious management, a proper rotation land may be cultivated every year wit profit, and even with improvement of th soil. In other words, the system of gardening may be applied to farms. Fo many years a large portion of Europe ha been cultivated without regard to naked fallows, a system unknown in the vast productive agricultural operations of China In this country the rotation of crops var considerably, and successively, in differen sections.

Every rotation yet known is more or les objectionable, upon some of the followin points :

The planting of crops without regard to the properties and wants of the soil. The inadequacy of the root, and the green manure crops: the great defect of the preparatory crop not serving to destroy the weeds which will obstruct, and insects which will prey on the succeeding crop. The present rotation, then, should be modified by the introduction of more meliorating crops; more green crops, peas, roots and broad leaved vine crops.

And now comes the important question: Which are the crops that can be made to succeed one another with the greatest advantage; and which are those that have the tendency of preparing the soil for the one which is to follow? The intelligent reader will at once perceive the difficulty in the solution of this problem, arising from the variations which exist in the soil and climates of different localities and countries.

What may be a good rotation or succession of crops in one soil, climate and latitude, will not answer indiscriminately everywhere. In this matter we must be governed by the data afforded by experience.

Wherever the art of gardening has been carried to perfection, five or six different products may be found growing on the same bed, or quarter of ground. In the old countries this system has been applied to the cultivation of fields; and these intermixtures of crops have been attended with success. It has long been known that leguminous plants, when sown among corn on a soil which is so old that they would not raise vegetables alone, will yield well without sensibly diminishing the corn crop. This intermingling of different plants or crops succeed on land which will not produce either separately to advantage. In Germany it is well established that wheat intermingled with rye does succeed on land which will not prrduce wheat alone. We are not aware that this has ever been tried in this country, nor are we apprised whether the grains of each are mixed previous to sowing and sown together, or whether the seeds or grain are kept separate and sown on alternate beds.

What crop is best to precede or succeed another, has not yet been fully established upon purely scientific principles; until this is done experience must be our guide.—Wheat will not do well after wheat.—Wheat after barley does not thrive well, unless the soil is exceedingly rich. But if a crop of peas, beans, vetches or clover, be interposed, then the second crop of the cereal plants will succeed well; and if these leguminous plants are cut while green, or if the clover the second year is ploughed in, the second crop of grain will equal if not surpass the first. Land continued in one crop for a length of time loses every faculty necessary for its reproduction, and cannot be made to bear it again until it has been exposed for years to the fertilizing influences of the atmosphere, and impregnated with fresh manure, but at the same time it will yield other different plants.

In conclusion, we unhesitatingly assert that the great secret and success in agriculture depend on a scientific rotation.—What one crop takes from the soil must be supplied by a different one: in this way the fertility of the soil can be kept up and improved. The truth of this proposition is established by the system of farming in nearly all Europe. Not one farm in a hundred affords material to sustain its production and fertility, and if it can be done by the system suggested every intelligent farmer will adopt it—while the self-conceited and stupid anti-book farmer will wear out his land and starve for the want of common sense. Whenever we hear a man say that he farms it according to his own notions, we enter his name on our list of ignorami. Can a man practice law or physic without a previous preparation—without a knowledge of these sciences? How then can any one understand the science of agriculture, the most difficult and complex of the three, without some agricultural education or information?

For the N. C. Planter.

A Conversation in an Invalid's Chamber.

Dear Planter: Last evening a group of gentlemen were gathered for a social *tete a tete* in my chamber. Consisting chiefly of farmers, the conversation turned upon agriculture and kindred subjects. Among other matters introduced was that of the most expeditious way of breaking or "flushing" uplands. One gentleman contended for the usual method, of breadths or "lands," back and forth, across the field; whilst another insisted for commencing on the outside of the field, and ploughing round and round, and finishing at a point in the centre—the discussion turning upon the time lost in turning around.

The advocate of the latter method urged that by his plan (in ploughing, for instance, a rectangle) he would only have to turn half round at each corner, making one right angle; whilst in ploughing perpendicularly, back and forth across the field, he would have, at the end of each row, to turn entirely round, making two right angles. As an offset to this, the other argued that his opponent, as he approached the centre of the field, would have to turn proportionately oftener, and that by the time he had finished he would have changed direction just twice as often as he with his mode; i. e., would have turned half round just twice as often as he had turned entirely round. Upon this point they took issue. Will you, or some of your curious mathematical readers, solve the problem and decide the mooted question? Let us enunciate it thus: In ploughing two rectangular lots of equal size, in one commencing at the outside and ploughing round and round, and in the other perpendicularly back and forth across, how many changes of direction would be made in one more than in the other; and which would be the most expeditious plan?

Before closing, I must tell you of something of an episode to our evening's conversation. After the above matter wa disposed of, as the next thing in regula order there was introduced that of *layin off rows*. You know, Mr. Planter, tha here about your old home, where our field are almost as level as perfect mathematica plains, our farmers are fastidious in nothing more than in having their rows pe fectly straight and equidistant; using f this purpose, some two, others three lon staffs. Each one present had his peculia views to offer upon this subject; one r ferring to the trouble of moving the *stick* so often; another to the difficulty of ha ing the rows laid off perfectly equidista by careless ploughers.

During the discussion, a plan suggest itself to my mind, by which these difficu ties might be obviated; and though the old fogies were disposed to somewhat je at my plan, I intend to submit it to yo readers, many of whom, I feel sure, will more appreciative of genius than the And yet I do not know that I shall not too magnanimous in thus divulging an id which, if experimented and improved upo might very probably secure me a valuab patent.

The plan is simply that of adjusting o end of a strip of wood, its length corr sponding with the intended distance b tween the rows, to the beam of the ploug the ploughing being regulated by keepi the other end immediately over each p ceding furrow. Of course, this is only t germ of the conception; the details m be supplied by each one as experience a taste may suggest. "But," exultingly terposed one of my casuists, "in ploughi every alternate row, your regulator wou be on the wrong side. How would y remedy that?" Simply by changing from one side to the other, by having it work in a wide staple, or by means of so other arrangements.

Should any of your readers think pro to attempt the experiment and succeed, I ask for the "right" is, that they sh announce the result in your columns, a credit the invention to the genius of an valid, who has not even seen a plough many long years. INVALID

Isle of Wight County, Va.

Spring Garden, N. C., May 14, 1860.

Editor N. C. Planter: Seeing that ur paper (the Planter) is filled generally ith instruction upon every object belong- g to the proper agricultural cultivation of r State, and information coming from arly all portions of it, which, in the ag- egate is seldom excelled for productive- ss and quality of produce by any State the Union—I propose saying a few ords for New Hanover, although she has en slow to seize the helm and steer on- ard in the improvements which have en taken up by some of our eastern coun- s, and have proved so beneficial to the terprising planter.

New Hanover is possessed of facilities re in any portion of the State. First, her il will compare favorably with an eastern unty, either for producing corn or cot- n. Although interspersed with small rren sand hills in the interior, yet her aste land is small in proportion to her ch upland; and no county in my know- dge possesses so great an amount of rich amp land that is equally easy to reclaim.

But backward as seem to have been the llers of her soil, they are awakening to a owledge of the fact that the old bare lls upon which their fathers toiled to ar them to manhood, cannot possibly ford the quantity of produce necessary to stify the tillage, without relief by a proper stem of manuring and otherwise improv- g.

I therefore feel bound to say to the read- s of the Planter, that a portion of our ost enterprising citizens have already lopted and are carrying out a system of actical and judicious farming, which will ceive the approval of all good farmers, d soon carry New Hanover above the gh praised south and west, to which so any of our fellow-citizens have of late ars removed. Cotton, the great staple the South, can be raised in New Han- ver, as has been fully tested, of quality ual to any portion of the State.

In many places, in passing through this unty, the cotton planters' eye is attracted y the upturned clay upon a rich and fer- le soil. This is not from unusual deep loughing, but chiefly from the fact that l our upland has a fine clay subsoil, and f that quality which, when drained, will roduce either corn or cotton equal to any pland in the eastern counties; then, by using annual dressing of compost or stable manure, the land will grow rapidly rich, which object is coming distinctly into view among those who have a knowledge that farming can be made one of the most profitable as well as healthy occupations.—Though many of our fellow-citizens are yet ignorant of the real value of their land, they will in a few years find economy in adopting the improvement system that others have commenced. Already you find many of the swamp lands are being drained, and soon will be yielding in great abundance. I am one in the midst, and hope to see the thing prosper. W. H. C.

Horticulture.

Grape growing and Wine Making in California.

Concluded.

COST OF PLANTING A VINEYARD.

This of course, will vary with the price of labor, locality and soils, but to give an idea to persons who have no practical knowledg, I will give here a correct account of the planting of a vineyard of 100 acres.—This actually expended on the same, in labor and money, having kept a strict account of everything. The soil is red clay, intermixed with partly decayed and partly in the process of decaying volcanic rocks, the soil having been previously cultivated for grains. These 100 acres were planted in Jan., 1858:

Three teams, 3 men, 8 horses, 20 days' with the deep tiller; 3 teams, 3 men, 6 horses, 20 days with the shovel plow; 6 men lining out and staking, 21 days; 12 men digging holes, 21 days; 6 men planting, 28 days; 120 days' work; wages $25 per month; board, $15—$50; per day, $1 92	$ 231 60
Current price of horse-hire, 50 cents per day for 15 horses, $7 50; 20 days' use	150 00
Horse feed, grain and hay, 20 cents per horse	75 00
Blacksmith's bill, wear and tear of harness, &c	30 00
Eighteen men laying out and digging holes, wages $30; board $15; 278 days' work	658 94
Six men planting 23 days; wages $30; board $15; 138 days' work	238 74
There were 32 days' work spent in digging the rooted vines in the nursery, hauling them and trimming, etc	55 36

The making of cuttings and planting them in 1857 in the nursery for rooting, their cultivation during summer, did bring these rooted vines to 4½ cents a piece, or 68,000 vines per $2 50 a thousand	170 00
Total cost of planting said 100 acres...	$1,604 00
Frst summer's cultivation, 200 days' manual labor, $50 per month, with board	$500 00
Horse hire and their feed for 5 months.	205 00
Blacksmith's bill, wear and tear of harness, etc........	15 00
Pruning first year in January........	25 00
Total summer work and fall pruning	743 00

SECOND YEAR'S EXPENDITURE,

Replanting those which died out from the last year's planting and sprouting......	$ 60 00
Summer cultivation as last year, with fall pruning........	745 09
Second year's total expensos........	805 00

THIRD YEAR'S EXPENDITURE.

Sprouting and additional expense for pruning, as this goes this year slower.	$120 00
Summer cultivation as above........	745 00
Third year's total expense........	865 00
Total expense up to bearing, ...	$4,019 64

THE YIELD OF THE VINEYARDS.

This depends, in a great measure, on the soil, the cultivation and care bestowed upon your vines. I will here give the product of vines planted in my vineyard.

Lot No. 5 contains 1,793 vines, planted from cuttings permanently in February, 1854; bore on an average to the vine in 1857, 9½ pounds good grapes; in 1850, on an average 40 pounds of grapes. The soil is very rich, and there was, some time ago, an Indian village there.

Lot No. 2 contains 1,282 vines, planted in 1854, with one year's rooted vines. In this lot the grapes have not been weighed, but an account was kept of the wine made from them. It yielded 1,265 gallons of first quality wine in 1056, and grapes were sold from this lot to the amount of $105, besides what were used for the house. In 1858 this lot averaged three gallons of wine to the vine. The soil is red clay of volcanic origin, with decayed rocks.

Lot No. 1 contains 1,312 vines, 4 years old. Last year the account of the grapes waa lost by accident. No correct average can be given, but this year the average product was 80 pounds to the vine.

In the Valley of Sonoma, grapes well cultivated, in good soil, will give one gallon of first quality wine from 12 pounds, one eighth gallon of second quality, one sixteenth gallon of fourth proof good brandy, beside some vinegar.

The wine can be sold young, if made into first quality White Wine, to San Francisco merchants for 75 cents, and second quality Red Wine for 50 cents per gallon, and new brandy at $2 50. The reader will see by the above that vineyards will pay at the present rate from one two thousand dollars per acre, according to soil and age of the vines.

PRESERVING GRAPES.

The best mode of preserving grapes is, in my opinion, the following: Build from boards a fruit house, leaving between them one-eighth part of an inch space instead of joining the boards close together, in order that the air may freely circulate; then put slats up to the top. Gather your grapes before they get wet from the rains, which make them burst easy and rot. Tie two bunches at the ends of a piece of twine, a short distance apart, and hang your bunches, do not touch each other, and your grapes will keep till summer. I have now (February 20th) as fine and fresh sound grapes as if gathered a week ago.

Being limited in space and time, I must conclude this already too long treatise; but in concluding I would respectfully suggest that if the Federal Government woulb give nstructions to the different United States-Consuls living in all parts of the civilized world, and especially to those who live in celebrated wine countries, to oollect annually a certain amount of vine cuttings from all varieties, good and bad, and send them to the Patent Office, the Commissioner of Patents might direct the planting of said cuttings in a congenial soil and climate, and when fairly rooted and multiplied, have them distributed to such parts of the Union wherein vines thrive. The expenditure to the Government would be a trifle in comparison with the immense benefit our citizens would derive from it, and it would save in few years millions of dollars that are now sent to foreign countries for wine, brandy and raisins. California, with such aid, would not only produce as noble a wine as any county on the face of the globe, but it would export more dollars' worth of wine, brandy and raisins than it now does of gold.

A. HARASZTHY,

Buena Vista, Sonoma county, Cal., Feb. 21st, 1859.

We have now given you, in broken doses, the best essay on grape growing and wine waking with which we have met, and as a further inducement for the people of North Carolina to engage more extensively in the business, we make the following extract rom the able address delivered before the Mecklenburg agricultural Society of Charlotte, N. C. Feb. 27th, 1859, by Hon. D. M. Barrenger.

But there is another culture which I am sure would ultimately succeed well in North-Carolina, and even in this immediate section. I refer to the *grape* and the making of *wine.* This is a sort of hobby with me and I regret that I have not time to enter more fully into its consideration. There is not a county in the State in which the grape-vine is not indigenous. There is, too, a great variety. Your own *Catawba* is becoming known over the world, and the Scuppernong has been famous since the first settlement of the State, both for the table and for wine. In the American Association for the advancement of science, I heard Dr. Jackson, the eminent Chemist and learned Professor of Boston, who has often visited our State, assert that the day would come when there would be manufactured from the Scupernong of North-Carolina as fine a wine as the celebrated Tokay of Hungary. It is already made, though not in the most expensive or skilful way to test its ingredients and fine properties, but in large quantities, and sold at the North to make and adulterate what is bought and drank here as "*French*" brandies and other *vile concoctions.* A recent analysis of the Scuppernong from this State at the Patent Office, to test its saccharine qualities, has shown it equal in this respect to the best French Grapes which contain 0 per cent. of saccharine matter. And it is well-known to be one of the most hardy of vines and wonderfully productive, growing to an immense size and covering a large space of ground.

A gentleman recently told me that he knew of three hundred gallons of wine made this year from *four* vines. We have, too, the *Isabella*, or *Laspeyre* Grape, long known and appreciated as excellent for the table or wine.

The grape will grow well where Indian corn and melons and tomatoes and similar productions thrive best, and we are just in *latitute most congenial to its growth.* Experience and culture would, doubtless, improve our native vines of all kinds, and enable us to produce other and better varieties than are yet known among us. In this respect, we would in the United States have an important advantage over Europe in the end. For it is a remarkable fact that none of the best vines of Europe are natives of that Continent, but were brought from the East, *originally* from Palestine, the land of the vine and the fig,—and perfected afterwards, by a skilful and assiduous culture.

It is one of the great wonders of nature, this improvement of vegetation by a skilful and well directed culture and peculiar adaptation to climate and to soil.

Your wheat, a great staple throughout the civilized world, and valued in the United States annually by hundreds of millions of dollars, was once a wild grass on the coast of the Mediterranean. In a garden or a field prepared for its proper growth and maturity, it has become as you all know, the "staff of life." The potato, which now feeds hundreds of millions of human beings, was once a worthless, bitter, stringy, fibrous root in Chili, on the coast of the Pacific. And cotton—*King* cotton—which now governs the commercial world, was known in the days of Herodotus and Pliny, as producing a wool-like substance, of little or no value in commerce or manufactures, short and silky, like the down on the quince, for which reason it was first called in Italy, "*Cotogni*," and hence our name of "cotton." I once plucked off in the month of February, (and have it still in my possession,) a handfull of open bolls of cotton from a field near the ruins of Pompeii, where it had been sown broadcast, as is the custom there. But with all the advantages of rich volcanic ground at the base of Vesuvius, a garden-like preparation of the soil and a most delicate culture, with the bright sky of Naples to warm it, it did not produce a wool to be compared in fineness or beauty to the American cotton. It wanted our climate and our knowledge of its appropriate cultivation and adaptation to the soil. These references are made to show how very much the grape and all other vegetation may be affected and modified and improved by reasons of climate and soil and peculiarity of culture. The grape, of all other fruits, is most susceptible of this alteration in its nature.

It may be said that the culture of the grape is a new thing; an experiment as yet with us. So once were cotton, and rice and tobacco, and many other products that are now yielding thousands of dollars to their successful cultivators. Every thing in an improved agriculture, as in all other pursuits, must have a beginning, and it is very easy and very cheap to try the experiment, if, indeed, it can be so called, in a country already making hundreds of thousands of gallons of wine.

It is the most certain and fruitful of crops. The vine lives to a very great age, even hundreds of years, and there is no part of it that may not and is not, in wine-making countries, adapted to some useful purpose. If you say it will not pay to cultivate the grape and make wine, I reply that experience shows the contrary. In France, where the culture has attained the highest perfection yet known, the *average* product per acre, is nearly five hundred gallons; at 10 cents or 12 sous per gallon, (and it would be worth more than five times that, at present, in our country,) the average value of the product per acre would be more than fifty dollars. It is stated on the best authority that the quantity of wine annually produced in France amounts at an average to a billion, one hundred millions of gallons, and its value is not less than two hundred millions of dollars.—More than three millions of persons are employed in its production and about three hundred thousand wine-sellers." Similar comparative statistics might be presented from the wine growing countries of Germany, Italy and Spain. In the grape growing and wine producing countries of Europe, and indeed, of the world, it is an almost universal food and drink of the people.—Pure wine is the *cheapest*, and when good, the *healthiest* of drinks. It is, in many countries, nearly as cheap as water, and is used as we would milk, or as a substitute, even, for water itself, as a nourishment and not as a mere beverage. The peasant has wine at every meal and it is a part of his daily food. It is a fact well known in history, confirmed with me by the fullest observation, that the people of wine-producing countries are the most *temperate* in the world. I am convinced that the *absence of the grape culture is one of the chief causes of the great national sin of intemperance.* In a residence of nearly five years in Europe, I have very rarely seen a drunken person, where wine is a common drink, and certainly never on the pure juice of the grape, however large, and gay and joyful might be the crowd of people. On the Continent, it is, in general, a social disgrace to be drunk, and the victim of this vice is excluded from society. It is a source of regret to say that in old mother England, our Anglo-Saxon father-land, there are plenty of hard drinkers. I believe the general cultivation of wine would be worth more than all the Maine Liquor Laws in the world, to prevent and remove from the American people the direful evils of intemperance. I rejoice to know that it is beginning to attract so much of public attention. In Georgia, Missouri and Ohio and other States, wine is already made in very considerable quantities, with the most profitable results and often of excellent quality. And North Carolina can be and ought to be, and one day will be made the best wine State in the Union.—And what a bright and prosperous day will it be, when it comes, for our good Old State! It has been as truly as beautifully said, that "from the remotest records of antiquity, the vine has been celebrated as the type of plenty and the symbol of happiness," and it is the crowning glory of the description of the peaceful and flourishing state of the kingdom of Israel, in the reign of Solomon, that "Judah and Israel dwelt safely, every man under his vine and under his fig-tree." I do not entertain a doubt that *pure and native* wine in common use among us, and *cheap*, as it would be if made by ourselves, would be a great blessing, moral, religious, social, intellectual, physical and by reason of all these, civil and political. Besides being an antidote to general intemperance, it would prevent in a great degree, the vile and wicked adulterations and poisonous liquors which are yearly destroying thousands of our people, impoverishing their families, blackening the catalogues of infamy and crime, and bringing all the other innumerable, direful calamities of this great, this wide-spread, this fearful vice in its train. It is the "*mixed*" wines that we drink and to excess, and strongly "mixed" at that; the "*mixed*" wines of Solo mon, and the wines "*full of mixture*" of David, "*the dregs thereof, all the wicked of the world shall bring them out, and drink them ;*" against which the terrible woes of the Bible are so repeatedly and solemnly uttered by the sacred voice of inspiration. I wish I had time to say more on this subject, so full of interest to our whole people. With my convictions of its importance I could not say less, and I shall be fully satisfied and rewarded if what I have so imperfectly said, shall induce one man, though I wish there were thousands, to "*dwell under his vine,*" or add a single mite to the growing interest of a subject so pregnant with results conducive to the wealth and welfare of our country.

How long do Varieties of Fruit Last?

In our last paper, page 53, in the course of a "Jog in the Fruit Garden," the opinion of certain cultivators was given, that varieties of fruit have only a limited term of existence. Thus: A certain kind of fruit—say the original Seckel pear tree—will live, it may be, only one hundred and fifty years. All buds or grafts taken from it, being only parts or extensions of the original stock, will die whenever the parent tree dies. Every sort of tree has a certain fixed amount of vitality, which it at length uses up, as a garrison does its bread. The most distinguished advocate of this theory, was Thomas Andrew Knight, of London. His own words are these: "No trees of any variety, can be made to produce fruit till the original tree of that variety has attained the age of puberty; and, under ordinary modes of propagation, by grafts or buds, all become subject, at no very distant period, to the debility and diseases of old age."

Mr. Kenrick, one of the earliest pomologists in this country, adopted the same theory. In his "American Orchardist," he speaks of "the finest of the old pears, whose duration we had hoped, but in vain, to perpetuate."......"Except in a few, highly favored situations, these old sorts have become either so uncertain in ther bearing, so barren, or so miserably blighted, so mortally diseased, that they are no longer to be trusted," etc., etc. And, it can not be denied that the belief is now widely entertained among fruit growers, (especially pear-cultivators.) and certain varieties have about run out. If they are *not* becoming exhausted, it is asked, why this cracking of the bark and of the fruit, these black spots on the leaves, this stunted growth, this barrennes, and every other sign of debility and old age?

If this doctrine has learned men and many cultivators on its side, so has the opposite. De Candolle, one of the greatest of the age, maintains that "varieties will endure so long as man chooses to take care of them, as is evident from the continued existence, to this day, of sorts, the most ancient of those which have been described in books. By negligence, or through successive bad seasons, they may become diseased, but careful culture will restore them to all appearance, for ever."......"To say that buds or grafts partake of the age and accidents of the (original) trunk, is improbable, if not impossible, as they can in fact be influenced only by this stock to which they are last transferred." The late Mr. Downing, held the same opinion.* A tree propagated from a bud or graft (which is but a developed bud,) is as much a *new* tree as one raised from a seed, and may live just as long. A seed has been well termed, "a primary bud:" it is essentially the same thing, the difference is one only of condition: "*it is the same embrgo in different garments.*" A tree may inherit diseases or health through the seed as well as through the bud.

But, say Mr. Knight and his followers, a tree propagated from a bud bears fruit precisely like its parent, while that from a seed is often different. Yes, indeed, but this is so only with seeds of varieties which have been brought into an artificial state of cultivation. In their natural state, seeds reproduce their parents as faithfully as buds or grafts do. It still holds true, therefore,

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His views were, in substance, these: One cause of disease may be found in our mode of propagating trees. A seedling, unmarred by the saw, or ax, or grafting knife, is longer lived than one of the same variety grafted on another stock. A tree, grafted on a stock closely allied to it, will last longer than one grafted on a stock not so related. For instance, the pear of one variety grafted on another kind of pear, will outlive one inserted upon a quince, or thorn, or mountain ash. An unhealthy stock enfeebles the tree grafted upon it. Weak coins often make weak trees.—And last, but not least, soil and climate have very much to do in promoting the healthfulness and longevity of trees. Putting these several considerations together, he finds it easy to account or the apparent decay of many varieties of fruit.

that trees raised from buds, are essentially shorter lived than those from seed. They are, in effect, new trees, and have in their nature as good a chance for long life as any other trees.

Now, is it a *fact* that any of our varieties of fruit are running out? Two of the "abandoned, nearly extinct" apples of which Mr. Knight spoke, were the "Nonpareil" and "Golden Pippin." Instead of dying out, as they ought to have done, according to this theory, thirty or more years age, they are still thriving in perfect health, and are among the most popular apples in England. So too in our conntry. Many causes have conspired to bring barrenness, disease and death into our orchards; but, after all none of our fruits are becoming extinct or worthless. Take the old Autumn Bergamot pear, supposed to have originated full two thousand years ago; it ought to be dead and forgotten, according to Mr. Knight, whereas, it is as hale, hearty, and productive as ever, in all our gardens to this day. The old Virgalieu, or White Doyenne, has certainly got into a bad way of late, in many quarters, cracking and becoming spotted and nearly worthless. By some sanguine cultivators —and Mr. Downing among the rest—it was thought that this was owing chiefly to exhaustion from the soil of the elements required by the pear. But the sickly Virgalieu has since been treated with virgin soil, and with "lime, wood-ashes, bone-dust, and blacksmith's cinders, along with barnmanure, according to the prescribed formula, but the patient has not generally got well. Yet, as if to show contempt of all sorts of theories and prescriptions, it has been sick and well for many years just as it pleased. We have seen it robust and fruitful for a period, then pining for a few years, and then, without any change of place, or soil, or treatment, it has become productive and vigorous again. During last Summer, it bore very fine fruit abudantly in some parts of New-York.

Still, undoubtedly, as a general rule, the decline of some of the older varieties of fruit is owing to exhaustion of the soil, and to other kinds of wrong treatment to which we have alluded. Give us good, strong soils, keep the ground in fine tillage as far as the roots extend, wash the trunk and limbs with a solution of potash and water' to keep down vermin, and healthy trees and good crops of fruit may be expected with an ordinary degree of certainty.

American Agriculturist.

The Seed, the Stock, and the Graft.

I consider that there is a very great oversight in the present mode of propagating and raising fruit trees, and which, in my opinion, lies in the indiscriminate way in which the stocks, or seedling trees to graft upon, are raised and used. For instance, in the case of apples, if a cider mill is near, a quantity of seeds are very readily obtained; but such seeds are probably from fifty to one hundred varieties, most of them having pedigrees, connections, relations, differences and affinities to others, and to and from each other, inextricably beyond all calculation. They are sown and grown, of course, indiscriminately: and the further probability is, that many of them may be already hybridized with, and allied to, the sorts which will be grafted or budded on them; and presuming that the stock exercises a most decided influence on the graft, and also on the quality of the fruit, but, more especially, on the health and productiveness or unproductiveness of the trees, notwithstanding the goodness or productive quality of the sort which may have been grafted from, such indiscrimitate amalgamation as this must be detrimental and deteriorating.

Some practical nurserymen say, that by the root-grafting system, the unsuitableness of stocks to grafts is done away with, from the graft itself rooting into the soil. I am of a different opinion, because I think that the rooting of the graft rather aggravates the difficulty than otherwise, as, then, there will be two distinct sources through which the tree will be supplied with sap, the amalgamation of which may be very injurious to either health, growth, productiveness, or quality. With other fruits which come under the process of budding or grafting—as with the apple—the procedure has been pretty much the same, and need not be enlarged on.

The pear, when budded on the quince stock, has shown us some lessons in the direction aimed at in the foregoing, as many sorts of the pear do not succeed on quince stocks, which, on pear stocks, are thrifty id good bearers. This can only be attri- ited to the influence of a stock which is ot fitted for them. In other sorts, failures cur on pear roots, but, no doubt, from a miliar cause.

By great attention and care in the prop- hybridizing and crossing of the different rts, the French and German growers have cceeded in raising many new seedling rieties, possessing first-rate qualities while their own roots pure, or when grafted on suitable stocks, but which also get uch deteriorated by being grafted on un- itable stocks. Many good American edlings have lately appeared, which, if us indiscriminately matched in grafting, ust share the same fate.

By gathering seeds which may have en hibridized by insects, or in any other omiscuous manner, some good pears may raised, but only by the merest chance; d the chances against it are manifold.

By a like hypothesis, I have been led to lieve that the indiscriminate manner in hich seedling stocks are raised,reduces the oductiveness, the size, the flavor, and so, in a very great degree, the constitu- onal health and vigor, or hardiness, of any of our fruit trees, to be, in a great easure, a matter of chance, dependent as whether any particular sorts of grafts ay happen to have been put upon stocks ited to them; and I suppose there will but very few who will think otherwise an that their chance of being so placed ould be but very slender indeed.

Nurserymen and fruit growers certainly eserve well for having introduced many ne sorts of fruit into the country; wheth- for self-interest or philanthropy, matters ot, as, in either case, the country is bene- tted. The progress made in propagating as also been great, but, by reason of those versights which I have been endeavoring point out, I think we have been—and re yet—working greatly in the dark, and aking success more a matter of chance an it otherwise might be.

As a commencement to improvement, e adaptation of properly bred stocks to e various sorts which it may be wished grow, might be the first aim; and, in y opinion, the nearer thoroughbred (bor- owing a term,) or bred as nearly as possi- le in a direct and pure line from the crab pple, pear or plum, etc., so much the more kely are we to have success in producing healthy, hardy trees, and clean, handsome, and high-flavored fruit. This one branch of the improvement is of itself a great work, and must also be a work of time and experience; but the importance of such a work ought to be sufficient to enlist the united effort and energies of all who are interested in fruit growing, and who is not?

A correspondent in Caldwell county, N. C., proposes the following query: What is the cause of the paucity of blooms on apple trees?

Bloom or blossom, a general name for the flowers of plants, but more especially of fruit trees. The office of the blossom is partly to afford protection, and partly to supply nourishment to the fertilizing organs of the plant, for the perfecting of the embryo fruit, or seed. Now, wherever there is a full crop of apples or any other fruit, in Caldwell or elsewhere, there will always be, in obedience to a wise law of nature, an abundant supply of bloom or or blossom. No orchard will bear equally well every year. Many trees only bear every other year. If the farmers in Caldwell witnessed a paucity of bloom in their orchards this year, we will underwrite that they will have but a small hit of fruit.—Hereafter, when the bloom on their orchards shall be abundant, they may prepare for saving a large crop of fruit, unless it should be cut short by a severe frost and other cold weather. A poverty of soil will not produce a large blow or crop of any kind. In short, it does not require a full bloom to protect and nourish a short crop of apples. Nature does nothing in vain.

Ed.

Mr. Wm. B. Webster, of Fauquier co., Va., has invented and patented a machine, which will separate the cockle from wheat upon a new principle; we have been informed, that every grain of cockle can be separated from the wheat without injury to the latter. They are simple in construction and durable.

For the Ladies.

Culture and Management of Evergreen Trees and Shrubs.

We are very frequently requested to give directions for the planting, and management after planting, of Evergreen Trees and Shrubs; and as we wish all the readers of the Planter to enjoy the fruits of our experience, we with pleasure comply with the requests of our inexperienced amateurs. We commence then with the lifting the tree or shrub from its original position:

First, be careful to save all the small fibrous roots, as they are the mouths through which the plant receives nourishment.—(As a matter of course you must lose some roots.) Be careful the roots are not exposed to the sun or drying winds, as exposure to either one hour, is enough to destroy life. It should be remembered that Evergreens constantly draw nourishment from the roots, the leaves acting as force pumps the whole time. It is, then, absolutely necessary that the roots be kept moist. The best way to do this is to lay straw or moss on them and sprinkle the same with water. The roots should be kept moist from the time of lifting to the time of setting out.

Second,—MANNER OF SETTING OUT. Take out the holes intended for the reception of the trees as follows: Describe a circle two and a half feet in diameter, take out the earth to the depth of one foot, placing the surface soil on one side the hole and the subsoil on the other, break up the subsoil as deep as possible at the bottom of the whole, after which fill up the hole with prepared soil as far as needed, which may be known by placing the tree in the hole and observing if when the hole is filled up the tree will be as deep in the ground as it had been previous to removal. Under no consideration plant more than one inch deeper than before, which may be easily known by observing the difference in the color of the bark.—Throw a little of the prepared soil on the roots, enough to cover them well, shake the tree sufficient for the soil to mingle with the small roots. If the ground is dry at the time of planting, when the hole i about half filled up, water copiously with watering pot with the spreader or rose o after which fill up with surface earth ; good enough for the purpose discard th subsoil altogether. The prepared soil ma be mixed as follows: two-thirds leaf c woods mould, one-third sharp sand, th whole well corporated together. After th tree is planted, tread the top earth roun the tree lightly, which will steady the tre and prevent the too rapid evaporation c moisture.

Third, TIME OF PLANTING.—We unhesitatingly say, September and April ar the best months in this climate, though i a forward mild spring they may be plante out successfully through the month c March. When planted in September, the take root before the cold winds so destructive to vegetable life can injure them. W have planted very successfully in Octobe and November, but would not recommen amateurs to do so; in fact we have move Evergreens in June with success, but the require much attention, as a general thing The winds which prevail in March make i very troublesome to plant, and should b done early in the morning, as by experienc we find the wind does not often interfer with the operation of planting till after o'clock, A. M. If dry weather prevail, i is very essential the plants should be watered over head morning and night, sa two quarts to a plant, until a good rain relieves you of the trouble. It is rarel necessary to water them after this. Wat exposed to the atmosphere is much to b preferred for watering newly planted trees

4th.—SIZE OF TREES FOR PLANTING This is a very important item. From tw to three feet high is the most sure c growing off readily; deaths among thi size are very few in comparison to those c a larger size, though with care many kind can be moved readily and successfully a six, seven and even eight feet high. Th kind we have found to move best at thes different heights, are Hemlock Spruce Norway do., White do., and Balsam Fir When Evergreens are moved of these sizes care should be observed to select thos which have been transplanted bienially i the Nursery. Though they may cost more they are in the end the cheapest, though i is not advisable to buy them at all.

NATIVE EVERGREENS.—Never move edars or Hollys more than two feet in eight, if you do not wish to be vexed by ilures, and keep the roots wet from the me you take them up to the time you ant them; then treat the same as trees ceived from the Nursery. If any roots e bruised by taking up, pare them noothly with a sharp knife; never plant rge Native Evergreens; you are sure to se them. We have been frequently ked, both by ladies and gentlemen, after ter they have moved Hollies and Cedars om 8 to 10 feet high—"Do you think ey will grow?" We always say "no;" d sometimes they don't like it; but me shows them we were correct. The st time to move the Natives is just as ey commence to grow: never let them ffer for water. If you do not attend to em regularly after planting, money and bor are entirely lost. Far better never tempt to move them, unless they can be tended to after planting.

W. H. HAMILTON,
Raleigh, N. C.

FLORICULTURE.

FLOWER GARDEN.—All plants that have en planted for summer display, should ceive attention in the way of being kept ee from weeds; the earth frequently rred, and during severe droughths should ceive a bountiful supply of water. When ice watering is commenced it should not discontinued till rain sets in.

DAHLIAS.—The best and most particu- kinds must be planted the first week in e present month. The ground should marked off, the holes prepared, and a eat, straight stake driven in the ground ose to where the plant will be, for its pport. Dahlias, when planted early, say ginning of May, bloom very freely late in e summer, but the flowers are small and orthless compared with those planted ter. The best distance to plant is from to eight feet apart. Mulch the plants the time of setting out; if manure is ed be careful to cover a little earth over it prevents scalding. The plant should ver be allowed to suffer for water.— ain them up to one stem. When the wers appear keep them thinned out, if e flowers are an object.

CLIMBING PLANTS, of all kinds, should be kept within bounds, and trained tastefully over unsightly objects. Nothing enhances the beauty of a flower garden so much as climbing plants and pillar roses tastefully arranged.

Our Homes.

In an address delivered before the Mecklenburg Agricultural Society, by Hon. D. M. Barringer, in November last, we find the following on Houses, Grounds and Health, which we think will be read with interest by the readers of the Planter:

If a man cannot afford to have a large or an expensive house, let him have a small and a cheap one; but by all means let it not be in the wrong place, or uncomfortable, unsuitable to the climate, not to say unhealthy; a receptacle and originator of malaria from the fatal effects of rotting wood and other decomposing vegetable matter; where the inmates always sleep in the midst of disease and the certain causes of death; with floors so close to the ground that no air can penetrate or dispel the fatal moisture and malaria, and so exposed to the heats of summer and the blasts of winter that more money is spent in doctor's bills for pneumonias and rheumatisms and typhoids than would pay ten-fold the cost of a better construction and keep it in better repair, while the innocent, unconscious inmates wonder why they should have taken a cold or the fever, and why they should be afflicted with such distressing maladies, while their neighbor is exempt, whose only advantage is that he has spent some of his money for a better and more comfortable house for his family to live in. I regret to say that, heretofore, rural architecture has been too much neglected in our State. But I rejoice to believe that we are now beginning to cultivate an improving taste in this very important matter; that we are learning how, and are becoming disposed to beautify and embellish our rural homes, and to combine the useful with the beautiful. Let no one go beyond his means—but as far as possible within them; let home be made not only a house to live in, not merely to eat and sleep in, as some would seem to think, but a sacred spot full of opportunity for high, moral, religious and mental culture—full of cherished, life-time associations, around which dear memories may cluster and cling with the fondest affection—with a cherished memento in every object within it and around it—the grounds, the trees, and the library, with the maps, the drawings and the paintings, where the heart and mind are trained and encouraged to high impulse, and noble, generous deeds of patriotic duty and christian charity and love. Such should be the home of the American farmer, as far as in his power; and the poorest can do much more to obtain it than he at first imagines. I never saw a family mansion, however humble its size and unpretentious its surroundings, nestling in the shade and under the foliage of nature, away from the dust of the roadside, with its green sward of grass in a neatly kept yard, and its little clump of trees or stately grove in front, with climbing vines and sweet scented flowers about the doorway, the tasteful handiwork of a mother or a daughter, of that lovely *woman* who, in the beautiful language of Sheridan, "governs us all; let us render them perfect; the more they are enlightened so much the more shall we be; it is by woman that nature writes on the hearts of men"—I say, I never saw such a home—with such harmonizing, such refining attractions around and about it, that I did not believe that the inmates, whatever their wealth or poverty, were not better and wiser and happier than others. I have seen some homes—they were not *homes*—I will not desecrate the sacred name—they were *eating and sleeping places*—(hardly fit for that) of men, who were consumed by a vile and corroding avarice—steeled and encased, as with a coat of mail, against every feeling of human sympathy and love, whose income was at the rate of thousands a year, and whose only pleasure and consolation consisted in being able to count at the end how much richer they were than at the beginning of the year. No wonder that children brought up in such miserable tenements, without comfort or refinement, too often without any education, should seek the first opportunity, at least such of them as may have been spared by constant disease and ruthless death, to fly from a dwelling which was not a home—and this even a birth place which had no attractions.

SARSAPARILLA.—This tropical root has reputation wide as the world, for curing on class of the disorders that afflict mankind— a reputation too which it deserves as the best antidote we possess for scrofulous complaints. But to be brought into use, its virtues mus be concentrated and combined with othe medicines that increase its power. Some reliable compound of this character is much needed in the community. Read the advertisement of Dr. Ayer's Sarsaparilla in ou columns, and we know it needs no encomiu from us to give our citizens confidence i what he offers.—*Syracuse* (*N. Y.*) *Organ.*

OILING LEATHER.—The Scientific American says that oils should not be applied t dry leather, as they will invariably injur it. If you wish to oil a harness, wet it th over night, cover it with a blanket, and i the morning it will be dry and supple; the apply neat's foot oil in small quantities, an with so much elbow grease as will insure it disseminating through the leather. A sof pliant harness is easy to handle, and last longer than a neglected one. Never us vegetable oils on leather, and among animal oils neat's foot is the best.

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Y A. M. GORMAN,
ITOR AND PROPRIETOR,

ce $1 50 for single copies—Clubs of five and
rds $1 each, *in advance,*

To Planters and Gardeners.

The subscribers offer for sale 60,000 barrels of Poudrette, made by the Lodi Manufacturing Company, in lots to suit purchasers. This article is in the twentieth year of its introduction into this country, and has outlived fertilizers of every other description, for the following reasons:—

1st. It is made from the night soil of the City of New York, by the L. M. Co., who have a capital of over $100,000 invested in the business, which is at risk should they make a bad article.

2d. For corn and vegetables it is the cheapest, neatest and handiest manure in the world, it can be placed in direct contact with the seed, force and ripens vegetation two weeks earlier, prevents the cut worm, *doubles* the *crop,* and is *without disagreeable odor.* Three dollars worth or two barrels is all sufficient to manure an acre of corn in the hill.

Price—1 bbl. $2,—2 bbls. $3,50,—5 hbls. $8, and over 6 bbls. $1,50 per harrel, delivered free of cartage to vessel or railroad in New York City.

A pamphlet containing every information, and certificates from farmers all over the United States, who have used it from two to seventeen years, will be sent free to any one applying for the same.

GRIFFING BROTHERS & CO.,
60 Courtlandt Street, New York.

March 1860. 3—2m. J. C. & CO., $3.

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Clothing, Time, and Labor Saved.

Indispensable to Housekeepes.

THE most simple, economical, and durable article ever offered to the public to alleviate the discomforts of wash-day.

DESCRIPTION.

It consists of a metal cylinder, with ribs on the inside, and an interior cylinder of wood, with ribs. There is a space of from 6 to 8 inches.—One crank turns both cylinders at the same time in opposite directions, rapidly creating a suds, forcing the water through the clothes, and effectually removing the dirt. The action of the water does the work quickly, dispeness entirely with rubbing, and thus saves the wear of clothes.

SULLIVAN & HYATT, Proprietors,
54 Beekman St., New York.

N. B.—State and County Rights for sale, and purchasers supplied with Machines at wholesale on liberal terms.

☞ A Machine is in operation by a laundress daily, at our Salesroom 439 Broadway.

April 1860. [J. C. & CO.] 4—ta$6.

From the Baltimore American.

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IMPORTERS AND WHOLESALE

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FLOUR, PRODUCE,

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General Commission Merchants.

NEWBERN, N. C.

G. F. FISHER. J. F. FOARD. O. HOOKER.

Newbern, N. C., Dec. 10, 1859. 16—tf

Ayer's Sarsaparilla.

A compound remedy, in which we have labored to produce the most effectual alterative that can be made. It is a concentrated extract of Para Sarsaparilla, so combined with other substances of still greater alterative power as to afford an effective antidote for the diseases Sarsaparilla is reputed to cure. It is believed that such a remedy is wanted by those who suffer from Strumous complaints, and that one which will accomplish their cure must prove of immense service to this large class of our afflicted fellow-citizens. How completely this compound will do it has been proven by experiment on many of the worst cases to be found of the following complaints:

Scrofula and Scrofulous Complaints, Eruptions and Eruptive Diseases, Ulcers, Pimples, Blotches, Tumors, Salt Rheum, Scald Head, Syphillis and Syphilitic Affections, Mercurial Disease, Dropsy, Neurolgia or Tic-Doulouruex, Debility, Dyspepsia and Indigestion, Erysipelas, Rose or St. Anthony's Fire, and indeed the whole class of complaints arising from Impurity of the Blood.

This compound will be found a great promoter of health, when taken in the spring, to expel the foul humors which fester in blood at that season of the year. By the timely expulsion of them many rankling disorders are nipped in the bud.—Multitudes can, by the aid of this remedy, spare themselves from the endurance of foul eruptions and eruptions and ulcerous sores, through which the system will strive to rid itself of corruptions, if not assisted to do this through the natural channels of the body by an alterative medicine. Cleanse out the vitiated blood whenever you find its impurities bursting through the skin in pimples, eruptions, or sores; cleanse it when you find it is obstructed and sluggish in the veins; cleanse it whenever it is foul, and your feelings will tell you when. Even where no particular disorder is felt, people enjoy better health, and live longer, for cleansing the blood. Keep the blood healthy, and all is well; but with this pabulum of life disordered, there can be no lasting health. Sooner or later something must go wrong, and the great machinery of life is disordered or overthrown.

Sarsaparilla has, and deserves much, the reputation of accomplishing these ends. But the world has been egregiously deceived by preparations of it, partly because the drug alone has not all the virtue that is claimed for it, but more because many preparations, pretending to be concentrated extracts of it, contain but little of the virtue of Sarsaparilla or any thing else.

During late years the public have been misled by large bottles, pretending to give a quart of Extract of Sarsaparilla for one dollar. Most of these have been frauds upon the sick, for they not only contain little, if any, Sarsaparilla, but often no curative properties whatever. Hence, bitter and painful disappointment has followed the use of the various extracts of Sarsaparilla which flood the market, until the name itself is justly despised, and has become synonymous with imposition and cheat. Still we call this Compound Sarsaparilla, and intend to supply such a remedy as shall rescue the name from the load of obloquy which rests upon it. And we think we have ground for believing it has virtues which are irresistable by the ordinary run of the diseases it is intended to cure. In order to secure their complete eradication from the system, the remedy should be judiciously taken according to directions on the bottle.

PREPARED BY

DR. J. C. AYER & CO.,

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dence of its virtues, wherever it has bee
As it has long been in constant use t
section, we need not do more than assu
ple its quality is kept up to the best i
been, and that it may be relied on to d
relief all it has ever been found to do.

Ayer's Cathartic Pills,

FOR THE CURE OF

Costiveness, Jaundice, Dyspepsia I
Dysentery, Foul Stomach, Erysipelas,
Piles, Rheumatism, Eruptions and Ski
Liver Complaint, Dropsy, Tetter, Tumo
Rheum, Worms, Gout, Neuralgia, as a
and for Purifying the Blood.

They are sugar-coated, so that the m
tive can take them pleasantly, and the
best aperient in the world for all the pu
family physic.

Price 25 cents per Box; Five boxes

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men, and eminent personages, have
names to certify the unparalleled usefuln
remedies, but our space here will not
insertion of them. The Agents below
nish gratis our American Almanac in w
are given; with also full descriptions of
complaints, and the treatment that shou
lowed for their cure.

Do not be put off by unprincipled de
other preparations they make more prof
mand AYER's, and take no others. The
the the best aid there is for them, and th
have it.

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MYCOETH & PERKINS, MANUFAC

THIS Guano has been fairly and
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General Agents,
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April 2, 1860.

JULY NUMBER, 1860.

NORTH CAROLINA PLANTER.

A MONTHLY

Bought
McDowell

Southern Agricultural Journal:

DEVOTED TO

THE IMPROVEMENT OF SOUTHERN FARMING, HORTICULTURE,
FLORICULTURE, AND THE DOMESTIC AND MECHANIC ARTS.

JAMES M. JORDAN, AGRICULTURAL EDITOR.
JOHN W. WOODFIN, OF BUNCOMBE, ASSOCIATE EDITOR.
S W. WESTBROOK, HORTICULTURAL EDITOR.
W. H. HAMILTON, FLORICULTURAL EDITOR.

A. M. GORMAN, Publisher, Raleigh, N. C.
TO WHOM ALL COMMUNICATIONS MUST BE ADDRESSED.

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April 1860. [J. C. & co.] 4—ta$6.

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Raleigh, January 22, 1859. 22—tf

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Marriage As It Is and As It Should Be. Price 75 cents.

Pleasant Hours—A Present to my Christian Friend. Price 50 cents.

For sale by H. D. TURNER,
N. C. Bookstore.

Ralalgh, Feb., 1860. 26—tf.

BE MERCIFUL,

TO THE NOBLE ANIMAL—THE HORSE.

HE is criminal who will allow his Horse to di with the Bots, or similar disease, when it i in his power to always have on hand a remedy tha will cure the disease and save tho Horse's lif Brown's Remedy has been before the public f several years past, and has been tried by hundreds, perhaps thousands, and the Proprieto has yet to hear of the first instance in whic it failed to give relief. When given as directe if it fails, the money will be refunded. For ON DOLLAR, this valuable Recipe, together wit others, which will be found conducive to the healt and thrift of the Horse, and a great preventativ of Distemper. Address

R. M. BROWN, P. M.,
New Hill P. O., Wake co., N. C.

Read the following Certificate:

We the undersigned have used and known use the Receipt advertised by Robt. M. Brown, Esq for the cure of Bots or Grubs in horses, and consider it the best remedy known, for that disease Indeed, we have never known it fail giving relie in the very first instance, even when horses wer suffering the severest agony. And the remedy i quick and effectual. For the benefit of ever body, and especially for the benefit of that nobl animal—the Horse—we recommend all to procur this valuable Receipt. We have known Mr. R M. Brown's remedy to be used in very many instances, and never without effect. In some case it has accomplished astonishing cures.

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EDWIN HOLLEMAN, of Wake County.
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JOHN C. BURGESS, WM. H. BURGES.
Randolph County. N. C
W. W. COX,
Clayton, Johnston, N.

New Hill. Wake co., Jan. 1, 1860. 19—1

Norfolk Steam Ornamental

WROUGHT AND CAST IRN RAIL WORKS

For Burial Lots, Public Squares Balconie

Gardens, &c.

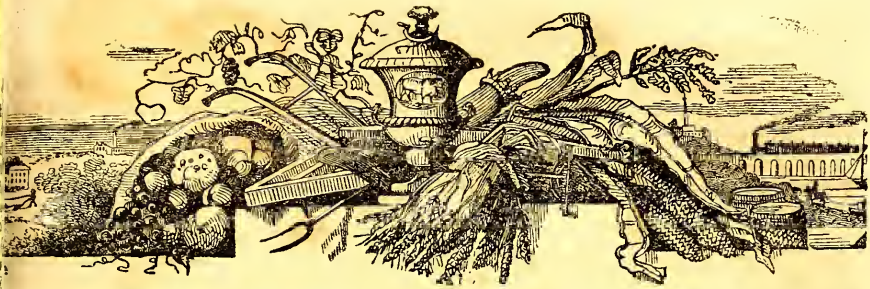
No. 19, WIDE WATER *STREET.*

WE would call the attention of the public our establishment for the manufacture the above description of work. We have such a one, we think, that would do credit to the Sout if properly patronized. We have introduced great expense machinery of the latest improvements and in connection an Iron Foundry f Rail Castings, &c. We have new and elegant pa terns, both plain and ornamental, many of our ow designs, which are entirely new and beautiful.

We now appeal to our Southern friends for the patronage and influence to this establishment; w pledge ourselves to give entire satisfaction. W will sell as low and give as good work as can be done in the country, and if every order does n come up to our representations, turn it back up us at our own expense. Orders punctually fille

SAML. H. HODGES & CO

Norfolk, March 7, 1860. 28—8m.



THE NORTH-CAROLINA PLANTER.

Devoted to Agriculture, Horticulture, and the Mechanic Arts

œ *tibi erunt artes.*—Virgil. { These are the parsuits to which you should direct your attention.

OL. 3. RALEIGH, N. C., JULY, 1860. NO. 7

Selections.

Nor must we pass untold what arms they wield,
Who labor tillage and the furrow'd field;
Without whose aid the ground her corn denies,
And nothing can be sown, and nothing rise.
Virgil.

[We are indebted to the polite attention one of the most intelligent and success- l farmers of this (Wake) county, for the llowing valuable plan of hill-side ditch- g, which he clipped from a paper, tried, nd found to be easy of execution, cheap nd efficient. We hope our readers will llow his example. One of the first and ost important steps of improvement, is arrest the washing of our land; and all ho will adopt this plan, will soon learn its lue, and acknowledge the usefulness of ricultural papers in spreading such val- able information.]

Selected for the N. C. Planter.

To Augustus Howard Esq

Dear Sir: —Before the receipt of your tter of the 19th May, I had promised the litors of the Recorder, at their special re- est an article for the July supplement on the suject of graded hill-side ditches and the horizontal method of culture. From their letter requesting an article on that subject, it is obvious that I was selected because of the article over my signature published in the April Supplement, finding fault with many of the systems now practiced by farmers on that subject—alleging that various inquiries were made of them, induced by that article, which it appears, was the cause of your inquiries being made. Being under the promise that I was to the Editors, and finding your letter asking information of the same sort, I determined to have your letter published and answer it through the same medium. By this course I could comply with your request and fulfil my engagement with them at the same cost of labor that it would take to answer one. To reply to your inquiries fully in one communication, would require more space than the Editors could well spare in one number; therefore I will continue my letters to you monthly until I have fully answered all your interrogatories.

Thus, sir, you have my reason for the publication of your letters without your consent, which I hope will be a satisfactory apology on my part for the liberty taken.

That I may the more fully explain the

the more readily be understood by you and others who may be desirous of information on the important subject of graded hill side ditches and the horizontal culture, I will begin with the A B C of the method of operation.

The first thing then is the construction and description of an instrument absolutely necessary to lay off the work correctly—the opinion of many that they can lay off as good a ditch or run as level a row, by the eye, to the contrary notwithstanding Take two strips of plank, 1 inch thick, 3 wide, and 8 feet long, put them together at one end by letting them into each other at such angle as that the other ends will be just twelve feet apart from outside to outside. Take two other strips of the same width and thickness, and of sufficient length, and let the end of one into the side pieces one third from the top or crown, and the other end one-third from the foot of the opposite or other side piece. The other piece must be let in the same way from the opposite side piece, which will cause them to cross each other, where they must be let in to each other—the whole put together with inch screws, firmly. Then draw a line from the outer corner of the foot of the other mark and saw off. This will make the instrument flat on its feet when raised up on them. It would be well to put on to the side pieces at each foot, a strip one inch thick and as long as the foot is wide and even with the bottom to keep the instrument from sinking in the ground where it is soft. The instrument now being complete—all but having the level and grade block attached to it—should have two good coats of paint to protect the wood from the influence of the weather.—Then procure a carpenters's spirit level, such as they use in leveling sills and plumbing walls. Attach one end of it to the cross piece by means of a screw; then place your instrument on the ground as nearly level as you can judge by the eye, bring the other end of the level on the other cross bar, up or down until the vacuum or air bubble in the tube stands in the middle or centre. Then firmly grip the level to the cross bar with the hand, or a hand vice which is better, carefully mark the feet of your instrument and change the ends, being careful to put the feet precisely on the same ground they stood on before. If the air bubble in the tube stands at the same place, you may certain of having a perfect level. Should y not have the true level—and it would an accident if you did—you will move t end of the instrument on higher or low ground, as may be indicated by t bubble until the vacuum or air bubb in the tube stands one half the distance b tween the true level point and the poi that it occupied after the feet were fi reversed; thus you will continue to chan until the air bubble in the tube will sta at the same point with the ends revers when you may be sure of having the tr level. Then firmly secure the end means of a screw as in the case of t other end. A better plan for attachi the level to the instrument is by a bo that will just receive the level, and atta the box just as I have directed for the lev in it, because you can more convenient take out the level for other purposes, th to unscrew it from the cross bar, by ha ing a hole in the bottom of the box throug which you can raise it out with your finge

Having got the true level, it is now ne essary to get the grade for your ditches.— To do this, you will take a block just broad and long as the foot of your instr ment and as thick as you want your grad in 12 feet—says 3,4, 5, or even 6 inches, you want your water to run so fast as keep out of the way of that which is comin on behind—and attach it to a strip of th same width and thickness of the side piec and some 12 inches long, at such angle t the block as will make the strip thus a tached to the block run up & be even wi the top and botton edge of the side piec when the block is placed under the foot o the instrument. This strip with the bloc attached should be firmly screwed on t the side piece, and you have a farmer level ready graded for running your ditches This minute description of the farmer' level I deemed necessary as many are usin very clumsy instruments, with plumbball very incorrect, especially in windy weather and as one third more work can be don with the one than the other, and wit double the ease to the operator.

The instrument or level, as I shall no call it, being ready all on. setting on th proper grade, brings up that question o which there is such a diversity of opinion, varying from three to six inches in twelve feet. In the discussion of this point,

this position as incontrovertible: that
true grade is one that will bear off the
r without breaking over the ditch or
ning it any deeper. For if the grade
great the ditch continues to wash
er by every heavy rain, it will have
to be considered a gully, and treated
rdingly. By this rule every man can
rmine the proper grade for himself.—
e than ten years experience has con-
ed me in the opinion that the grade
I give to my ditches is the
one, and that a material departure
er way will prove mischievous. Slight
ations either way, will make very little
eptible difference. It is safer, how-
, to depart slightly on the side of a
ter grade than on the side of too little.
ause, in the one case your ditch being
pable of carrying off the water, must
k over. While in the other case, the
chief that accrues is only the washing
our ditch. A very good and substantial
on why the grade should be no more
n sufficient to bear off the water is, that
less the declension or grade of your
h to answer the purpose for which you
nd it, the better it will encircle the
, and thereby protect more of the land
ch it was designed to do. In other
ds, suppose you have a ditch to run 300
ds long, it will take 75 strides of your
l to run it; and by calculation, you
find that the mouth of your ditch will
just 18 ft. & 9-12 lower than the be-
ning point. But again suppose by way
experiment that you change your grade
m 3 to 6 inches and go to the same
rting point and go the same distance
) yards; by calculation, you will find
t the mouth of the ditch will be 37 feet,
6-12 below the starting point. This
erence in the grade of your ditches, if
grade of your land was only moderate,
ght make the mouths of the ditches, as
ve spoken of, from fifty to an hundred
ds apart, from which you will readily
ceive, if you should select the six inches
your grade, that all the land between the
nts where those two ditches would run
uld be unprotected, supposing that to
the first ditch and nearest the top of
hill. I will now, sir, leave this branch
the subject with you, to judge whether
ave sustained myself in the position set
with.

The grade given to my ditches is 3 inches 12 feet on porous soils that absorb water freely, and 3¼ and 2½ I would put down as the very highest point. I have one field 3½, and I find that those ditches wash deeper, but it would take several years for that grade so to deepen the ditch as to make it mischievous. I have found that the grade given to my ditches succeeds well when other things are done as they should be, of which I am hereafter to speak.

Having gone through with the question of grade, and given the one used by myself, the use of the level is next in order. The level being ready, with the grade block screwed on the thickness you intend to have your grade, you will take it to the field intended to be ditched, accompanied by a small boy with a hoe suited to his size. The operator should first take a general view of the field and get as well in his mind as possible the variations of the hills and the common undulations of the land, and then approach the highest point and examine round the hill from 30 to 75 yards, in proportion to the fall, to find out where the first collection of water will take place.—This you can judge of by the breaks or undulations of the surface. Having determined that point you of course will start your ditch a few yards below that point, sufficiently near to catch the water before mischief can be done the land. You next determine to which side of the field you will carry the water; and that done, you place the level with the end that has the grade block on it in that direction and continue to move one or the other end up or down hill until the air bubble stands in the centre of the tube; you then have a grade precisely the thickness of the block; for the level being perfect before the block was put on and the block now being on, and the air bubble standing in the centre, shows conclusively that the land on which the block stands is just the thickness of the block lower than the other foot of the level. You then direct your boy to dig a small hole just in front of the forward end of the level as a sign to show where the level stood. The level is then moved forward in either direction that you may please to go, and the hinder foot is carefully placed where the front one stood, and you look to the air bubble in the tube to see if it is right, if not, you move the forward end up or down, as may be necessary, until the bubble stands at the centre, when you order your boy to dig, and move on as before until you gain the end. You then, return to the beginning place and run as before, taking care not to turn your level round unless you should want to change the direction of the water and throw one half out at one side and the other half at the other, which I invariably do if it is practicable. Just here, I will remark, that all new beginners are apt to select some point at which they want to discharge the water of the ditch, and are apt to force the level up or down, as the case may be, to gain the point. This is wrong. The level should be allowed to select its own point, after you start, which it will always do better than the operator, if properly managed. Again, by forcing the level, some times up and then down, in the same ditch in order to gain points to suit the views of the operator, mischief is apt to accrue when heavy falls of rain have be encountered, by water passing faster where the grade is increased than where it is decreased, so that the water in the parts of the ditch where it moves slowest, is crowded on by the water from the part where it has more grade and moves faster, and thereby endangers the ditch. Once broke—and mischief ensues to the land below; hence it is important that the grade should be kept as perfect as possible. Again, some operators are so tenacious of the coming out point, or the point where they want to empty their ditch, that they frequently make that the starting point, and they about as frequently have a ditch where it does no good.—The first ditch having been laid out, you move down the hill from 50 to 100 yards, regulating the distance agreeably to the fall of the land and the probable chance for water to collect so as to wash the land, and there select another starting point as in the first case, and run as before. Thus you continue on until the field is finished. It may not be amiss to remark that more depends on the judgment of the operator in the starting point for his ditch than anything else; for if you start at a proper place, and manage the level properly, the balance will be right. In selecting the starting point, the only guide is your judgment, and when you find a place that you feel satisfied water will collect and wash the land below, be sure to make that a starting point—or rather a few yards below, and throw your water in whatever direction may best suit the circumstances o the case.

The next thing to be considered is th opening of the ditches and the implement necessary for doing it. The first thing needed is a scouter plough, horse and boy and as many hands weeding hoes as yo may think necessary or proper to operat with. You will start ahead of the horse directing the ploughman to follow yo taking care to follow carefully the chop in all their meanderings, directing th ploughman to do the same. This is important that your grade may be kept perfect. Three furrows are run with the plough, the two last on the upper side o the first, and just near enough to brake the ground into each other. The hands with their hoes then scrape out the dirt o the lower side. On soft land this is sometimes sufficient, where the land lies pretty well; but usually, I run three or four more furrows in the bottom, not so deep howeve as the first, and take that dirt out. In the last operation, I usually put behind a hand of the best judgmement, to finish off the ditch, prefering to have the ditch rathe wide than deep, concave in the bottom, with the deepest part nearest the upper side, so the weight of water will not be against the embarkment made by the dirt taken out of the ditch. That part of the ditch occupied by the water is usually about two feet wide and 6 to 10 inches below th common surface of the ground; but to take a level from the embankment below is from 16 to 20 inches to the bottom. In middle Georgia it is not unfrequent that the operator comes in contact with gullies—they are however very easily overcome.—The gully must be first filled up with rock, pine bushes or poles even with the bottom of the ditch and sufficiently up and down the gully as to go well above the ditch, and below under the embankment. This being done, the whole should be covered with dirt, and then the embankment raised below the ditch by digging dirt from above and on the side of the gully that the water goes off on, until it is sufficiently high. It would be well to protect this part of the embankment by placing stones in it if you have them convenient. Thus the operator may go on until the ditches of the field are completed. Should stumps or trees be in the way of the ditch, it is best to take them up; but if the operator is careful he may ass them while running the ditch, by orcing the level below so as to pass with-ut injury. Operators will find the land n better order to ditch or level, after stub-le than other crop, as the surface is moother.

The next thing is to level the field, or ather to lay off the rows horizontally or n a level. To do this, the operator will etatch his grade block, and with his level nd boy, return to the highest point of the eld. Within a few yards of the apex or ighest part, at either side or in the mid-le—I usually take the middle as I can bet-er judge of the land each way—start your evel, having the boy to dig the holes as efore at each set of the level. If you be-in in the middle of the field, you must re-urn to the beginning place and run the ther end out. That row being done you ove off from that row 20 to 50 yards, be-ng governed in the distance by the fall of he land; if very abrupt the distance should e less, but if a very gentle declivity it may e increased. Thus you may continue on ntil the field is all laid off. In laying off hose rows which are technically called guide rows," no attention is paid to the itches; when ever you approach one, cross t as if it was not there. A guide furrow r two being laid off, you may start your loughs to bedding, both operations at he same time.—Having a few guide fur-ows run off as above referred to, you will tart on the chops of the first row followed y your principal plough man, and thus un out three or four of the guide rows.—The ploughman then returns to the upper ide of the first guide row, and with a reed r small stick in his hand as the width of our rows, and proceeds to run parallel hereto, regulating the width by the stick which he will very soon do with great ac-curacy.—Thus he continues on untill all he land is laid out above the first guide urrows.——Meanwhile another boy, with he same sort of a plough, a scouter, is fol-owing on, running one furrow always on he lower side, running first right and then eft, sufficiently near to break the ground erfectly into the track of the other or first urrow. The reason for this second furrow s obvious when you reflect that a good urning plough, such as Freeborn's, No. 11½, will turn the dirt so far over a single urrow that in returning you cannot break he ground perfectly into the first furrow run. It therefore becomes necessary that your land may be perfectly pulverized through, and especially in the centre of the bed where you intend to plant your crop. Having finished above the first guide row, the principal ploughman comes down to fill the space between that and the second. As in the case above, he starts in below the first guide furrow—followed by the other boy as before, running the second furrow always on the lower side, and runs parallel to it, governed in the distance by his stick, as before, until he runs three or four furrows—governed in the number by the distance of the guide furrow below —then he shifts to the upper side of the guide furrow, and continues to run as many furrows as were run to the one above. By this time the parallel rows will more than likely approach each other on that part of the ground that is most abrupt, and leave one or more places where the ground is more level, not laid off or filled up, as it is technically called. The balance must be filled up with short rows on that side which should seem to be the best level to the eye of the ploughman. Meanwhille the other ploughs may go on bedding up, by running the first furrow on the lower side of the row, or a furrow, run for the purpose of bedding to, and returning on the upper side of the same row or furrow and thus continuing on until one half the middle is taken on each side. The necessity for running the first furrow on the lower side is obvious to every ploughman.—It is because having an open furrow to turn the furrow slice into, the resistance that would be otherwise offered to it by turning up the hill, is removed, while returning on the upper side, the plough having the advantage of turning the furrow slide down the hill is enabled to lay the dirt up much better than if it was turning up hill, without the advantage of an open furrow to receive its furrow slice. Thus the operation moves on until the field is completed without any regard to the ditches, other than to prevent the ploughs from dragging or discharging their dirt in them as they cross them. The operator or manager may be somewhat surprised at his guide furrows, at one end or at some point in the field coming much nearer together at one point than another. This not unfrequently occurs, and always does, where the same level passes over ground that is a steep hill and at some point, over that which is comparatively level. In cases of this kind much judgment is to be exercised by the man that is filling up, and it not unfrequently requires the judgment of the operator or manager and sometimes the level, to know on which side to throw in the short rows, for the great object is to keep your rows as level as possible.

I am aware of the great objections that many have to the short rows that necessarily occur in the horizontal cultivation; to these objections I will reply at the proper place. It will be proper, however to make one or two remarks, showing how time may be saved in plowing those short rows, without dragging the plough from where a bunch of them may be finished in the middle of the field, if you please to end to begin the next row. And just here I will remark, that the crop is plowed in the same way that I have recommended for the bedding of the land, by running the first furrow on the lower side of the row, and the returning furrow on the upper side.—Now to the short rows.

A hand having started at the end on the row next to the one just finished, in returning on the upper side he finds a bunch of short rows above him, he however goes on until he is going back with his last furrow. When he gets to the end of the first short row he stops and ploughs it; when it is finished on arriving at its end without stopping his horse he throws over his plough to the place from which he ffrst turned round, and carries the furrow on until he comes to the end of another short row; he turns and ploughs that, and so on until all are ploughed; he then throws his plough over as before and gains the end at his proper place.

I have now, sir, gone through with the description of the level, the manner of using it in laying off the ditches, of opening them and the guide rows, the manner of filling between, and the method of ploughing or bedding them, which ends the chapter on these subjects. I hope I have made myself understood: but if I have not, all that you have to do, is to interrogate me as to that particular point, point out clearly the difficulty that seems to be in the way, and I have no fears but that I can explain fully to your understanding the point that may be in doubt. I had intended in this communication to give the whys and wherefores of this system, and answer a few of the most prominent objections that are made to it, as well as to point out why the various systems that are intended to approximate to this, and the system which had suggested itself to your mind, and spoken of in your letter, will not do. But I am warned by the number of pages already written, that I shall quite occupy the space that the editor can conveniently spare for one letter. In my next I will take up those subjects, when the beauty of the system will more fully appear.

With high regard,
Your most obedient servant.
R. S. HARDWICK.

Jocassie, Hancock county Ga.
June 15th, 1847.

Circulation of matter in the Animal and Vegetable Kingdoms, &c.

In the immense, yet limited expanse of the ocean, the animal and vegetable kingdoms are mutually dependent upon, and successive to, each other. The animals obtain their constituent elements from the plants, and restore them to the water in their original form, when they again serve as nourishment to a new generation of plants.

The oxygen which marines animals withdraw in their respiration from the air, dissolved in sea-water, is returned to the water by the vital processes of sea plants: that air is richer in oxygen than atmospheric air, containing 32 to 33 per cent, while the latter contains only 21 per cent. Oxygen also combines with the products of the putrefaction of dead animal bodies, changes their carbon into carbonic acid, their hydrogen into water, and their nitrogen assumes again the form of ammonia.

Thus we observe in the ocean a circulation takes place without the addition or subtraction of any element, unlimited in duration, although limited in extent, inasmuch as in a confined space the nourishment of plants exists in a limited quantity.

We well know that marine plants can not derive a supply of *humus* for their nourishment through their roots. Look at the great sea-tang, the *Fucus Gigantius*: this plant, according to Cook, reaches a height of 360 feet, and a single specimen, with its immense ramifications, nourishes thousands of marine animals; yet its root is a small body, no larger than the fist.

What nourishment can this draw from a naked rock, upon the surface of which there is no perceptible change? It is quite obvious that these plants require only a hold—a fastening to prevent a change of place—as a counterpoise to their specific gravity, which is less than that of the medium in which they float. That medium provides the necessary nourishment, and presents it to the surface of every part of the plant. Sea-water contains not only carbonic acid and ammonia, but the alkaline and earthy phosphates and carbonates required by these plants for their growth, and which we always find as constant constituents of their ashes.

All experience demonstrates that the conditions of the existence of marine plants are the same which are essential to terrestial plans. But the latter do not live like sea plants in a medium which contains all their elements, and surrounds with appropriate nourishment every part of their organs; on the contrary, they require two media, of which one, namely the soil, contains those essential elements which are absent, that is, the atmosphere.

Is it possible that we could ever be in doubt respecting the office which the soil and its component parts subserve in the existetence and growth of vegetables?—that there should have been a time when the mineral elements were not regarded as absolutely essential to their vitality? Has the same circulation been observed on the surface of the earth, which we have just contemplated in the ocean,—the same incessant change, disturbance and restitution of equilibrium?

Experience in agriculture shows that the production of vegetables on a given surface increases with the supply of certain matters, originally prats of the soil which had been taken up from it by plants—the excrements of man and animals. These are nothing more than matters derived from vegetable food, which in the vital processes of animals, or after their death, assume again the form under which they originally existed, as parts of the soil. Now, we know that the atmosphere contains none of these substances, and therefore can replace none; and we know that their removal from a soil destroys its fertility, which may be restored and increased by a new supply.

Is it possible, after so many decisive investigations into the origin of the elements of animals and vegetables, the use of the alkalies of lime and the phosphates, any doubt can exist as to the principles upon which a rational agriculture depends? Can the art of agriculture be based upon any thing but the restitution of a disturbed equilibrium? Can it be imagined that any country, however rich and fertile, with a flourishing commerce, which for centuries exports its produce in the shape of grain and cattle, will maintain its fertility, if the same commerce does not restore, in some form of manure, those elements which have been removed from the soil, and which can not be replaced by the atmosphere?—Must not the same fate await every such country which has actually befallen the once prolific soil of Virginia, and North Carolina, no win many parts no longer able to grow its former staple productions—wheat and tobacco?

In the large towns of England the produce both of English and foreign agriculture is largely consumed; elements of the soil indispensable to plants do not return to the fields,—contrivances resulting from the manners and customs of English people, and peculiar to them, render it difficult, perhaps impossible, to collect the enormous quantity of the phosphates, which are daily, as solid and liquid excrements, carried into the rivers. These phosphates, although present in the soil in the smallest quantity, are its most important mineral constituents. It was observed that many English fields exhausted in that manner, immediately doubled their produce, as if by a miracle, when dressed with bone earth imported from the continent. But if the export of bones from Germany is continued to the extent it has hitherto reached, our soil must be gradually exhausted, and the extent of our loss may be estimated, by considering that one pound of bones contains as much phosphoric acid as a hundredweight of grain.

The imperfect knowledge of nature, and the properties and relations of matter, possessed by the alchemists, gave rise, in their time, to an opinion that metals as well as plants could be produced from a *seed*.—The regular forms and ramifications seen in crystals, they imagined to be the leaves and branches of metal plants; and as they saw the seed of plants grow, producing root, stem and leaves, and again blossoms, fruits and seeds, apparently without receiving any supply of appropriate material, they deemed it worthy of zealous inquiry to discover the *seed* of gold, and the earth necessary for its development. If the metal seeds were once obtained, might they not entertain hopes of their growth? Such ideas could only be entertained when nothing was known of the atmosphere, and its participation with the earth, in administering to the vital processes of plants and animals. Modern chemistry indeed produce the elements of water, and combining them, forms water anew; but it does not *create* those elements, it derives them from water; the new-formed artificial water has been water before.

Many of our farmers are like the alchemists of old,—they are searching for the miraculous seed—the means, which, without any further supply of nourishment to a soil scarcely rich enough to be sprinkled with indigenous plants, shall produce crops of grain a hundred-fold.

The experiense of centuries, nay, of thousands of years, is insufficient to guard men againts these fallacies; our only security from these and similar absurdities must be derived from a correct knowledge of scientific principles.

In the first period of natural philosophy organic life was supposed to be derived from water only; afterward, it was admitted that certain elements derived from the air must be superadded to the water; but *now* know that other elements must be supplied by the earth, if plants are to thrive and multiply.

The amount of materials contained in the atmosphere, suited to the nourishment of plants, is limited; but it must be abundantly sufficient to cover the whole surface of the earth with a rich vegetation. Under the tropics, and in those parts of our globe where the most genial conditions of fertility exist,—a suitable soil, a moist atmosphere, and a high temperature,—vegetation is scarcely limited by space; and, when the soil is wanting, it is gradually supplied by the decaying leaves, bark and branches of plants. It is obvious there is no deficiency of atmospheric nouribments for plants in those regions, nor are these wanting in our own cultivated fields: all which plants require for their development is conveyed to them by the incessant motions of the atmosphere. The air between the tropics contains no more than that of the arctic zones; and yet how different is the amount of produce of an equal surface of land in the two situations!

This is easily explicable. All the plants of tropical climates, the oil and wax palms, the sugar cane, &c., contain only a small quantity of the elements of the blood necessary to the nutrition of animals, as compared with our cultivated plants. The tubers of the potato in Chili, its native country, where the plant resembles a shrub, if collected from an acre of land, would scarcely suffice to maintain an Irish family for a single day (Darwin). The result of cultivation in those plants which serve as food is to produce in them those constituents of the blood. In the absence of the elements essential to these in the soil, starch, sugar, and woody fibre, are perhaps formed; but no vegetable fibrine, albumen, or caseine. If we intend to produce on a given surface of soil more of these latter matters than the plants can obtain from the atmosphere or receive from the soil of the same surface in its uncultivated and normal state, we must *create* an artificial atmosphere, and add the needed elements to the soil.

The nourishment which must be supplied in a given time to different plants, in order to admit a free and unimpeded growth, is very unequal.

On pure sand, on calcareous soil, on naked rocks, only a few genera of plants prosper, and these are, for the most part, perennial plants. They require, for their slow growth, only such minute quantities of mineral substances as the soil can furnish, which may be totally barren for other species. Annual, and especially summer plants, grow and attain their perfection in a comparatively short time, they therefore do not prosper on a soil which is poor in those mineral substances necessary to their development. To attain a maximum in height in the short period of their existence, the nourishment contained in the atmosphere is not sufficient. If the end of cultivation is to be obtained, we must create in the soil an artificial atmosphere of carbonic acid and ammonia; and this surplus of nourishment, which the leaves can not appropriate from the air, must be taken up by the corresponding organs, that is, the roots, from the soil. But the ammoia, together with the carbonic acid, are lone insufficient to become part of a plant lestined to the nourishment of animals.—n the absence of the alkalies, the phosphates and other earthy salts, no vegetable ibrine, no vegetable caseine, can be formed. The phosphoric acid of the phosphate of ime, indispensable to the ceralia and other vegetables in the formation of their seeds, s separated as an excrement, in great quantities, by the rind and barks of ligneous lants.

How different are the evergreen plants, he oleaginous plants, the mosses, the ferns, nd the pines, from our annual grasses, the ceralia and leguminous vegetables! The ormer, at every time of the day during winter and summer, obtain carbon through heir leaves by absorbing carbonic acid which is not furnished by the barren soil on which they grow; water is also absorbed and retained by their coriaceous or leshy leaves with great force. They lose very little by evaporation, compared with other plants. On the other hand, how very small is the quantity of mineral substances which they withdraw from the soil during their almost constant growth in one year, in comparison with the quantity which one crop of wheat of an equal weight receives in three months!

It is by means of moisture that plants receive the necessary alkalies and salts from the soil. In dry summers a phenomenon s observed, which, when the importance of mineral elements to the life of a plant was unknown, could not be explained.—The leaves of plants first developed and perfected, and therefore nearer the surface of the soil, shrivel up and become yellow, lose their vitality, and fall off while the plant is in an active state of growth, without any visible cause. This phenomenon is not seen in moist years, nor in evergreen plants, and but rarely in plants which have long and deep roots, nor is it seen in perennials in autumn and winter.

The cause of this premature decay is now obvious. The perfectly-developed leaves absorb continually carbonic acid and ammonia from the atmosphere, which are converted into elements of new leaves, buds, and shoots; but this metamorphosis can not be effected without the aid of the alkalies, and other mineral substances. If the soil is moist, the latter are continually supplied to an adequate amount, and the plant retains its lively green color; but if this supply ceases from a want of moisture to dissolve the mineral elements, a separation takes place in the plant itself. The mineral constituents of the juice are withdrawn from the leaves already formed, and are used for the formation of young shoots; and as soon as the seeds are developed, the vitality of the leaves completely ceases.—These withered leaves contain only minute traces of soluble salts, while the buds and shoots are very rich in them.

On the other hand, it has been observed, that where a soil is too highly impregnated with soluble saline materials, these are separated upon the surface of the leaves.—This happens to culinary vegetables especially, whose leaves become covered with a white crust. In consequence of these exudations the plant sickens, its organic activity decreases, its growth is disturbed; and if this state continues long, the plant dies. This is most frequently seen in foliaceous plants, the large surfaces of which evaporate considerable quantities of water. Carrots, pumpkins, peas, &c., are frequently thus diseased, when, after dry weather, the plant being near its full growth, the soil is moistened by short showers, followed again by dry weather. The rapid evaporation carries off the water absorbed by the root, and this leaves the salts in the plant in a far greater quantity than it can assimilate. These salts effloresce upon the surface of the leaves, and if they are herbaceous and juicy, produce an effect upon them as if they had been watered with a solution containing a greater quantity of salts than their organism can bear.

Of two plants of same species, this disease befalls that which is nearest its perfection; if one should have been planted later, or be more backward in its development, the same external cause which destroys the one will contribute to the growth of the other.

Tobacco Leaves Against the Peach Borer.—For many years we used Tobacco leaves or stems from a cigar shop, with perfect success. Apply them about the 1st of June, in small quantities, close around the roots of the trees, at the surface of the earth. The insects will not approach while the tobacco is there.

Gardner's Monthly.

Classification of Manures.

Vegetable manures are numerous and important; some of them have been already mentioned, when treating of the ploughing in of green crops. They are not so energetic in their action as other manures yet to be noticed, but are invaluable as a cheap means of renovating, bringing up, and sustaining the land. Clover is one of the principal crops employed for this purpose, more largely for this continent than any other, buckwheat, rye, rape, wild mustard, sainfoin, spurry, turnips sown thick, indian corn sown thick, and cow peas, are some of those more commonly used in this and other countries. They add organic matter largely to the soil, which organic matter they have drawn in great part from the air, and their roots bring inorganic substances from the subsoil to the surface, so that it is within the reach of succeeding crops. There are differences of opinion in various districts as to the proper period for ploughing these crops under: it is a matter to be settled by experience and convenience. They not only add fertilizing substances to the soil; they also improve its physical character. A light soil is somewhat consolidated, and rendered more retentive of moisture, while a stiff one is mellowed and loosened.—Some of these green crops, such as spurry and buckwheat, will grow well on extremely light, sandy soils. After they have grown up and been ploughed in a few times, the land is so improved that it will bear crops of a more valuable nature; and thus by a continuance of them at proper intervals, it may not only be kept up, but steadily improving.

The same effects follow the ploughing of grass land, and turning under of the turf. The thicker and heavier the sward the better, because then a larger amount of fresh, decomposable organic matter, in the form of roots, is added to the soil. Where land has been in grass for some years, say four or five, the weight of roots under the surface is in some cases twice as much as the weight of the grass above: these roots all decompose, and of course enrich the soil very materially.

There are few cases in which a judicious course of green cropping will not improve land. In the worst instances, it is sometimes necessary to make numerous trials before even the hardiest green crop will succeed; when this difficulty is overcome, and a good growth once obtained, expeperienced farmers say that the land may by proper management be brought to any desirable state of fertility. It must always be remembered in bringing up land by green crops, that they really add no inorganic matter to the soil; they only bring it up from the subsoil, and render insoluble combinations near the surface soluble.—The inorganic part of the soil, therefore, is actually diminishing by the occasional crops which are taken; and while improving by these means, care should for this reason be taken to add occasionally some form of mineral manure.

The practice of turning the turf upon one edge when ploughing, seems to be gaining ground; it is said by its advocates that the turf rots more surely and speedily. Those who contend for laying it flat, say that the weeds are thereby more effectually killed, and that the fields may be made smoother. Potato tops, turnip and beet tops, green weeds, leaves, and every form of green vegetable matter, may be advantageously ploughed in at once, or carted to the compost heap. Nothing of the kind should be neglected.

Straw is not usually applied to the land until it has been worked over by animals, and mixed with their manure: in this form we shall refer to it again. When applied alone, it is usually best and most convenient to rot it down in a compost heap, as the long straw is only ploughed under with difficulty. On stiff clay soils it is, however, very beneficial to bury long straw, as then it serves to loosen and mellow the clay, both by lying among and separating the lumps, and by its gradual fermentation and decay. It has been found good practice, in many parts of the country, to draw out straw in the autumn, and lay a thin covering of it over winter grain. This serves as a protection during winter, and retains moisture when necessary during a dry spring or early summer. By the time that the stubble is ploughed, it has decayed so as to turn under easily, and forms quite a rich coating in the way of manure.

In the neighborhood of the sea, where seaweed can be obtained, the farmer should embrace every opportunity for getting it. In England and Scotland, the right of way to a beach where seaweed can be had, increases the rent of a farm several shillings per acre. On many parts of our own coast, the farmers are very eager to obtain it. The ash of some seaweeds analyzed by Prof. Johnston gave the following results:

Potash and soda,	from 15	to 40	per cent.
Lime,	3	... 21	"
Magnesia,	7	... 15	"
Common salt,	3	... 35	"
Phosphate of Lime.	3	... 10	"
Sulphuric acid,	14	... 31	"
Silica,	1	... 11	"

This table shows that these ashes are rich in the substances most needed by our crops, particularly in potash, soda, sulphuric acid, and phosphoric acid. The quantity of ash that they leave when dry, is larger than that in straw or in hay. When freshly taken from the sea, they contain a very large proportion of water.

Seaweed is ploughed in green, or applied as compost. In either case it decays very rapidly, unless extremely dry, and produces most of its effects upon the first crop. Many of the seaweeds contain much nitrogen; and this while it adds greatly to their value as manures, increases the rapidity with which they decompose.

In England rape dust is largely used as a manure, and with much advantage.—The rape seed is pressed to obtain its oil, just as linseed is, and the hard cake formed by pressure sold for manure.—Four or five hundred weight per acre are applied as a top dressing, or from 1500 to 2000 lbs. when it is ploughed in. This is therefore a powerful manure, and is so portable that it would be valuable in this country, could it be procured at a reasonable rate. Where green vegetable manures of any description can easily be obtained away from the farm, the farmer will do well to remember that there is an especial advantage in their organic substances which have never been there before, and are consequently a clear gain to the soil in every respect.

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If men could find the fabled fountain that is said to restore youth and health and beauty, with what eagerness they would rush to drink its waters. Yet with scarcely less eagerness do they now rush to drink of waters that bring upon them premature old age and disease, and loathsome ugliness.

Exhastion of the Soil.

"In no other country in the world has the exhaustion of the soil been so rapid and so marked as in the United States.—The exhaustion prevails alike in the Northern, the Middle and the Southern States. Some of the richest soil in the world has been already, in a hand's breath of time, as it were, rendered unproductive. The evil is a national one, and stalks over the country like a dark spectre casting his shadows far and wide. The approach of evil, though comparatively so rapid, has been nevertheless so stealthy and insidious that multitudes are not aware of it. If Humboldt thought it his duty to lift up his warning voice to England, and to point out the inevitabtable consequences of the exhaustion of her soil, when more is done, probablyto replenish a single county in that country than to replenish any one of the States in this Union, what would he have said of the exhaustion of the soil in a country from which the woods have scarcely yet been cleared away, if he had known to what an extent the depleting process had already been carried? And in view of the general apathy which our people manifest upon the subject, what would have been his alarm at a state of facts unprecedented in the history of any other nation? We are pursuing a course of drastic, almost barbarous depletion. Millions of acres, but yesterday rich, are to-day sterile, and bleak desolation reigns over them. And the process of ruin goes steadily on unabated, never eliciting a thought from the many, never met by a protest from any large-hearted sympathizer with nature, or political economist, who must see in it the certain pressage of evils neither few nor small. No warning voice is uplifted against the impoverishing, cruel system. The slumber is profound, and almost universal, and as extraordinary as profound. It is the sure index of national decay. Unless arrested, the evil will prove the certain harbinger of national weakness, poverty and want. From the soil comes our national and individual wealth. Destroy its vitality, or its general productiveness, and a blight as if a plague had passed over the land, will rest upon it. Better, a thousand times better, sink every mine it contains in the depths of the ocean, than destroy the elements of life in the bosom of our mother earth. Better that our ships should rot at their wharves, and the music of every mill in the country should cease, than to permit the soil of our fields to become sterile.—Then indeed would the *land* mourn, and the people would mourn with it.

In New England the product of wheat fell off in ten years from 1840 fifty per cent., from two millions bushels to one million, and the decline has been going on since. It may perhaps be said that the soil being naturally barren in New England, the people have taken to manufacturing from preference, as more profitable. But in Georgia and the comparatively new States of Kentucky, Tennessee and Alabama, much of whose soil is naturally rich, the falling off in the production of wheat in the time mentioned has been still more striking.—The yield fell off from twelve million bushels to five in a single decade. The decrease in the great wheat-producing State of New York has been equally great. In '45 the crop was more than thirteen million bushels, while last year it had dwindled down to six. Nothing but the extraordinay growth of the great Northwest has kept the price of flour from doubling. But the great Northwest is undergoing precisely the same process of depletion, and will at no distant period exhibit the same result of diminished crops. It takes but a comparatively short time to draw the elements of vitality from the soil, upon the present principles of cultivating it, and when this is done, the farmer mover to a still newer 'country', and subjects his fields to the same plundering system. That system is a fiery scourge, and it leaves behind it only dreary and bleak dessolatin—dilapidated fences and walls, forsaken hovels and smoking ruins, the mournful mementoes of the ignorance, indifference and short-sighted, murderous policy by which such results were brought about. These will constitute, largely, the inheritance of the coming generation.

We have instanced only a single item to show the exhausting nature of the present system of agriculture. We might, were it necessary, instance other crops as illustrations of the same truth. The diminution is not referable to a reduced quantity of land sown, but to a reduction of yield per acre. But for the quantity of new lands every year brought under culivation, this decline of agricultural products would be exhibited in a more startling light. How many 'old fields' are there even in Louisiana, Missippi and Alabama, where cotton once grew, but which will not now pay for cultivation?

Propably this evil is growing more steadily and rapidly and generally in the South than in any other part of the country. We think so because there is actually no attention paid to the replenishing of the soil, as compensation for what is taken from it, in any part of the South. There may be exceptional cases where this is done, but they are too few and unimportant to be taken into account when speak- of general results. This ought not so to be. It is a potent cause of weakness. It is dangerous. It is springing a mine beneath our prosperity, and doing it so secretly and noiselessly that we seem not to be aware of what is going on. Let us not be called false alarmists. Let the facts of the next census speak, as speak they will, and trumpet-tongued, to us. The South is now relatively decaying; and it is to this exhaustive system of agricultural sterility, to this absence of artificial compensation and internal regeneration and improvements, to the direction of the public attention away from these really momentous questions of home policy, and towards political abstractions, and to these only, that we must look for the true reasons of our comparative decline. Let the Southern people look these truths in the face, and act in the full view and force of them, as becomes them, or they may expect ere long, not only to be distanced in the road to wealth and grandeur, but to sink down into utter insignificence and abject poverty. We repeat that we are no false alarmists; but the hand is writing unmistakably upon the wall, as the figures it is making conclusively show, and he is as blind as a bat who cannot see it. The impending dilapidation may be averted, and ought to be.—But it cannot be, and will not be without a united and vigorous and prolonged effort, and unless we turn our attention from the exclusive consideration of politics. The Southern people will never apply themselves energetically to remedial measures till the latter are generally and fully considered, and their necesstties perceived; and this is impossible so long as mere political abstractions fill completely the public vision."—*New Orleans Com. Bulletin.*

The Composition of Milk.

The appearance and the usual qualities of milk, are too wll known to require description here. It differs considerably in its composition as obtained from different animals, but its general nature is similar in all cases. From 80 to 90 lbs. in every 100 lbs. of cow's milk, are water. This quantity may be increased by special feeding for this purpose. Some sellers of milk in the neighborhood of large cities, who are too conscientious to add pump-water to their milk, but those who still desire to dilute it, contrive to effect their purpose by feeding their cows on juicy succulent food, containing much water; such watered milk they are able to sell with a safe conscience, though it may be doubted if the true morality of the case is much better than if the pump had been called directly into action.

From 3 to 5 lbs. in each 100 lbs. of milk, are curd, bumen, animal muscle, and the others we have named in a previous article. Casein is a white, flaky substance, and can be separated from the milk in various ways. There are also in every 100 lbs., from 4 to 5 lbs. of a species of sugar, called *milk sugar*; this is not so sweet as caue sugar, and does not dissolve so easily in water. It may be obtained by evaporating down the whey, after separation of the casein or curd. In Switzerland it is made somewhat largely, and used for food.

The butter or oil amounts to from 3 to [illegible] lbs. in every 100 of milk. Lastly, the ash is from ¼ to ¾ lb. in each 100. This ash is rich in phosphates, as shown in the following table; it represents the composition of two samples, each of the ash from 1000 lbs. of milk.

	No. 1.	No. 2.
Phosphate of Lime,........................	.23......	34
Phosphate of Magnesia,..................	.05......	07
Chloride of Potassium, ...	14......	18
Chloride of Sodium (com. salt,)........	02......	03
Free Soda,..	04......	05
	0.50	0.67

We shall refer to this table again.

The butter, as stated above, is from 3 to [illegible] lbs. in each 100 of milk. It exists in the form of minute globules, scattered through the liquid. These globules of butter or fat are enveloped in casein or curd, and are a very little lighter than the milk; if it is left undisturbed, they therefore rise slowly to the surface, and form cream. If the milk be much agitated and stirred about, the cream will be much longer in rising; so also it it is in a deep vessel, as a pail, in a place of shallow pans. Warmth promotes its rising.

There is a little instrument called the *galactomer*, intended to measure the richness of milk. They consists of a series of graduated tubes, which, by means of small divisions, mark the thickness of cream that rises to their surface. It is not a correct instrument, for the reason that I have already stated, that cream does not rise so well through a deep column of milk as through a shallow one. The quantity of cream then, indicated by a galactometer, will always fall short of the real proportion which the milk contains. It may sometimes be of use, for comparing the richness of milk from various cows of the same dairy.

When milk is drawn in the usual way from the cow, the last of the milking is much the richest: this is because the cream has, in great part, risen to the surface inside of the cow's udder; the portion last drawn off then, of course contains the most of it. Such a fact shows the importance of thorough and careful milking.—In some large dairies, the last milkings from each cow are collected in a separate pail. More milk is said to be obtained from the same cow when she is milked three times a day, than when but once or twice: less when milked once than twice, but in this last case it is very rich.

Some large breeds of cows are remarkable for giving very great quantities of poor watery milk: other small breeds give small quantities of milk, that contains an uncommon proportion of cream. These large breeds are kept in many parts of the country about London, for the purpose of supplying the city. By giving them succulent food, the milkmen contrive to increase still farther the watery nature of their milk, as before noticed.

The small breeds have one great advantage; it requires a much less quantity of food to supply the wants of their bodies, so that all over that quantity goes to the enriching of the milk. A weight of food therefore, with which they could give good milk, would only suffice to keep up the body of the larger animal, and the milk would consequently be poor and watery.

This is probably one chief reason, why the milk of the small breeds generally excels so decidedly in richness.

BUTTER.—We are now to consider the various methods of making butter, and some of the questions connected with its preservation. The object in churning, is to break up the coverings of the little globules of butter; this is done by continued dashing and agitation; when it has been continued for a certain time, the butter appears first in small grains, and finally works together in lumps.

When cream is churned, the best practice seems to be, to allow of its becoming slightly sour: this sourness takes place in the cheesy matter, or casein, that is mixed in the cream, and has no effect upon the butter beyond causing its more speedy and perfect separation.

In many dairies the practice is to churn the whole milk. This requires larger churns, and is best done by the aid of water or animal power; it is considered to produce more butter, and this is said by some to be finer and better quality. I do not think that there have been any very decisive experiments upon this point.

The excellence of butter is greatly influenced by the temperature of the milk or cream, at the time of churning; if this be either too hot or too cold, it is of poor quality. A large number of experiments have been made with regard to this point, and the result arrived at is, that cream should be churned at a 50 to a 55 deg. of Fahrenheit's thermometer. If whole milk is used, the whole temperature should be about 65 deg. F. at commencing. In summer, then, cream would need cooling, and sometimes in winter a little warmth. It is surprising how the quality of the butter is improved by attention to these points. I have seen churns made double, so that warm water, or some cooling mixture, according as the season was, winter or summer, might be put into the outer part. It will be seen, that in whatever way the temperature is regulated, a thermometer is a most important accompaniment to the dairy.

The time occupied in churning, is also a matter of much consequence. Several churns have been exhibited lately, which will make butter in from 3 to 10 minutes, and these are spoken of as important improvements. The most carefully conducted trials on this point, have shown that as the time of churning was shortened, the butter grew poorer in quality; and this is consistent with reason. Such violent agitation as is effected in these churns, separates the butter, it is true, but the globules are not thoroughly deprived of the casein which covers them in the milk; there is consequently much cheesy matter mingled with the butter, which is ordinarily soft and pale, and does not keep well. Until the advocates of very short time in churning, can show that the butter made by their churns is equal in quality to that produced in the ordinary time, farmers had better beware how they change their method, lest the quality of their butter, and consequently the reputation of their dairy, be injured.

Butter contains two kinds of fat. If melted in water at about 180 F., a nearly colorless oil is obtained, which becomes solid on cooling. If the solid mass be subjected to pressure in a strong press, at about 60 F., a pure liquid oil runs out, and there remains a solid white fat. The liquid fat is called *elaine*, and the solid fat, *margarine*. These two bodies are present in many other animal and vegetable oils and fats. They are both nearly tasteless, and when quite pure, will keep without change for a long time. In the presence of certain impurities, however, they do change.

If great care is not taken in washing and working, when making butter, some buttermilk, of course, contains casein, the nitrogenous body which we have already described. The casein, like all other bodies containing much nitrogen, is very liable to decomposition. This soon ensues therefore, whenever it is contained in butter; and certain cheminal transformations are by this means soon commenced, whereby the margarine and elaine are in part changed to other and very disagreeable substances; those which give the rancid taste and smell, to bad butter. The milk sugar is instrumental in bringing about these changes. It is decomposed into an acid by the action of the casein, and has a decided effect upon the fatty substances of butter, causing them to become rancid.—This action and consequent change comes on more or less rapidly, as the temperature is warmer or colder.

No matter how well the butter is mad

n other respects: if buttermilk be left in , there is always, from the causes above entioned, a liability to become rancid nd offensive. When packed in firkins, it ill be rancid next to their sides and tops; ill be injured to a greater or less depth, s the air may have obtained access. Saltng will partially overcome the tendency spoil, but not entirely, unless the butter made so salt as to be hardly eatable.— nother reason for much of the poor butr, unfortunately too common, is to e found in the impure quality of the salt sed. This should not contain any magesia or lime, as both injure the butter; ey give it a bitter taste, and prevent its eeping for any length of time. Prof. hnston mentions a simple method of freeg common salt from these impurities.— is to add to 30 lbs. of salt about 2 qts. boiling water, stirring the whole thorghly now and then, and allowing it to and for two hours or more. It may be terward hung up in a bag, and allowed drain. The liquid that runs off is a turated solution of salt, with all the agnesia and lime which were present.— ese are much more soluble than the salt, d are consequently dissolved first.

Want of caution as to the quality of salt ed, and of care in separating the butterilk, cause the spoiling of very great ocks of butter every year; a large part that sent to Europe is sold for soap ease, and for other common purposes, nply because these points have been negcted.

eproduction by Propagation—Layering

There are four principal modes of reoduction in propagation, namely: 1. yering. 2. By cuttings. 3. By graftg. 4. By inoculation.

Layering consists in bending down the anches, limbs, or suckers, without sepaing them from the parent plant, and vering them with soil; their extreme ends ly being left out. Thus buried, they ll generally soon strike root; some parular trees, however, with extreme diffilty. Such must be tongued—an operan which consists in cutting the layer lf off, and splitting it up an inch or more; cleft to be kept open by a small wedge, d buried beneath the surface. This eration should be performed in spring; and the plant, when well rooted, may be separated in the autumn or sping following. By cuttings. There are many plants that may be raised from cuttings. For trees cuttings should generally be from eight inches to a foot in length, cut off at the bottom, close below an eye, and planted in a humid soil, two thirds of their length beneath the surface, and the ground trodden hard. With some particular kinds, however, it is necessary to square the bottom of the cutting, and press it hard down on the bottom of a pot. Other kinds must be planted in pure sand, and protected from the sun till rooted.—They require artificial heat in the soil, and a confined atmosphere, which moderates their transpiration.

Grafting consists in placing a branch or twig of one vegetable upon another, in a way to cause the branch or twig to produce a new plant, with more valuable products.

The plant grafted upon is called the *stock*: the plant grafted, the *scion*. Grafting is particularly useful to perpetuate certain vegetables, that are by nature endowed with peculiar properties, that would be lost were the plant continued by means of the seed.

Professor Thouin has described forty modes of grafting: we will describe here three—*cleft grafting*, *grafting by approach*, and *root-grafting*.

Cleft-Grafting.—This mode of grafting is usually practised on stocks of from one to two inches in diameter. It is thus performed: The head of the stock is carefully sawed or cut off, at a part free from knots, and the top pared smooth. With a thin knife, split down the stock through the centre, to the depth of about two inches; insert a wedge to keep it open for the reception of the scion. The scion is to be prepared in the form of a wedge, with an eye, if possible, in the upper part of the portion thus formed. Perfect success is the more certain when this is the case. The scion is now carefully inserted, so that the inner bark of the scion and the inner bark of the stock may both exactly meet. In large stocks, sometimes four scions are inserted. The whole is now to be carefully covered with the grafting clay, except two or three eyes of each scion.

Grafting by Approach.—This is often resorted to with plants that succeed with difficulty by other modes. The limb or limbs of each plant, which are to be thus united, must be prepared with a long, sloping, cut, of several inches, nearly to the centre; and the part of each plan thus prepared are to be brought together and firmly secured by a bandage, so that the bark shall exactly meet on at least one side; they are then covered, at the junction, with clay or composition. When a complete union has taken place, the trees are separated with a knife, by cutting off the scion *below* the junction, and cutting off the stock *above*.

Root-Grafting.—This operation is often performed on grape-vines, just below the surface of the earth, by the usual mode of cleft-grafting. It is also performed on portions or pieces of root, where suitable stocks are scarce.

The Reproduction of Vegetables.

REPRODUCTION BY GENERATION.

Plants are reproduced by their seeds, stems, limbs, and even leaves (as is the case with the cactus). A majority, however, of cultivated vegetables spring from the seeds. It is by this mode of reproduction that we preserve, in most plants, their vigor, strength, and fructuous powers; for it is well known that many vegetables, propagated for several generations by means of their branches, become finally barren.

When a plant is perpetuated by means of its seeds, as is the case with wheat, rye, etc,, we call it *reproduction by generation*; and we say that the reproduction is by *propagation*, when it is any other part of the vegetable than the seed that concurs in the formation of the new plant. Thus, it is by propagation that the limb or cutting of a tree produces another tree.

In the production by generation, we must above all things be careful in the selection and preservation of the seed. That they may unite all the qualities requisite to reproduction, it is indispensably necessary that theyshould be thoroughly ripe, and well preserved. We should above all things prevent their getting heated, in which case they would either not sprout at all, or produce but feeble plants. A common mode of testing the quality of seeds, is to throw them into water; those floating upon the surface being considered worthless. But another, a better method, and a more certain test of the germinating faculty is to place the seeds in a saucer, betwee two pieces of cloth saturated with water After a time equal to that which seed usually require to sprout in the earth, w may judge of the quality of those unde trial.

Some seeds retain the germinating faculty a long time; but it is considered safer particularly in field culture, to use fresh seeds. It has been remarked that frui accruing from old seeds, that had retaine their germinating power, are better tha those furnished by new seed; these last producing more vigorous stems and leaves Most plants come well from the seed; some trees only thrive best from another metho of reproduction.

It is often advantageous to set apart certain rich spots of ground as nurseries, o plant-beds, in which the seed is sown.—After the plants attain the proper size they are transplanted to where they are t remain permanently. This is the metho pursued with tobacco, cabbages, etc.

Is it Best to Hill Corn, or Not?

W. O. Buell, of Perth, C. W., says "The cultivator should examine into th character of his corn soil, and regulate hi operations accordingly. He will observ that less water or rain is requisite to fee his corn crop than some others, and that a superabundance of water will be detrimental. Once well drained, keep tilled, and somewhat open and porus soil, we believ it matters but little whether the corn be hilled or not. Hilling it will stir the land and aid the stalks to stand firmer; but as to the food and drink for the plant, it wil readily find both in such a soil as we described, if it is to be had. But the case will be very different in undrained and shallow and plowed land, with a hard or clayey bottom. If the seed lie near this hard bottom, the subsequent root will be encased during the wet season with a weak and watery source of nourishment, and i the dry season with a dried up and comparatively unproductive one. The plant will struggle on, but more depends on "good luck" than on "good management." We should approve of hilling in such a case for more than one reason.—The stirring of the soil above; the gathering of a supply of food about the stalk, which would be washed down from time to time; the retention of moisture, and its increased amount taken from the atmosphere by the heaped up soils in dry seasons; in short, the tillage done overhead which should be done below, would all aid the crop, and go far to recompense it for the previous bad treatment, and induce a growth nearer the original surface of the land, and farther from the neglected region in the neighborhood of the seed bed. The practice of hilling corn may well be supposed to have originated out of necessity that arose to make up afterward for a bad preparation of the land for successfully raising a good crop. It is therefore a useful and beneficial practice in such cases, as well as a necessary one; and keeping in view the character of our agriculture in a new country, where land is plenty and abor dear, and the improbability of a high state of preparation of the soil by most of our farmers for many years to come, it is a practice which must continue, and recommend itself in a great majority of cases. t is not to be wondered at, that in some ew instances good crops have been raised without hilling; but they do not, in our pinion, prove that it will do, as a general hing, to omit it. In a sandy or very light oil, hilling will aid the plant; mechanicaly speaking, it will support it, and will oubtless retain and increase the moisture n dry seasons. It will afford a protection gainst the sun's rays, and, as we believe, ill decrease the evaporation. Upon the hole, we hence say, hill the corn."

Genessee Farmer.

* * *

TRANSPLANTING TREES.—If Nurserymen ould mark the north side before they ere taken up, and when set out to have e tree put in the ground with its north de to the north in its natural position, a rge proportion would live. Ignoring this w of nature, is the cause of so many ansplanted trees dying. If the north side exposed to the south the heat of the sun pecially in the Southern States is too eat for that side of the tree to bear, and erefore it dries up and decays.

* * *

The earth is a tender and kind mother the husbandman, and yet one season he ways harrows her bosom, and at another pulls her ears.

EDITORIAL.

RALEIGH, JULY, 1860.

☞ Subscribers receiving the Planter with a *cross mark* opposite their address, are thereby notified that the No. thus marked closes the time for which they have paid, and unless renewed, the paper will be sent no longer. We earnestly request all who find the cross mark on this No. to promptly forward the money for the Planter another year, and if possible, send another name (or a club) along with it.

The cash in advance plan is now adopted by all the papers of the country, and we believe our subscribers will like it better than the credit system; hence, we have adopted it, and must rigidly adhere to it. No one will therefore feel agrieved when he finds his Planter discontinued, if he neglects to send on money to renew. All will be treated alike. We trust, however, all will like us so well, that each will send on his renewal as soon as he sees the *cross mark.*

EDITORIAL CORRESPONDENCE.

ISLE OF WIGHT CO., VA., July, 1860.

We are in the Old Dominion, God bless her, the mother of States and Statesmen, and seven of the fifteen Presidents, on a visit to our children, where we shall celebrate the 4th of July, 1860. Yes, we are at home again, sweet home, there is no place like home.

"Breathes there a man with soul so dead,
Who never to himself hath said—
This is my own—my native land!"

But to our children in Carolina, our adopted State, we shall return again.

"Carolina, Carolina! Heaven's blessings attend her!
Whilst we live we will cherish, and love, and defend her,
Though the scorner may sneer at, and witlings defame her,
Our hearts swell with gladness whenever we name her."

Our readers will not be so uncharitable as to expect any agricultural matter in this editorial; if they do, they will be sadly disappointed. We have other fish to fry.—We are living over again our boyhood—early manhood, associating with our friends, enjoying the happiness afforded by the presence of dutiful and affectionate children, whom we have not seen in many months—anticipating the pleasure of celebrating another 4th of July in Virginia, the first of the colonies to conceive the idea of independence. On the 15th of May, 1776, the Convention of Virginia instructed their delegates in Congress, to propose to that body to declare the colonies independent of Great Britain, and appointed a committee to prepare a declaration of rights and plan of government. In Congress, Friday, June 7, 1776, the Delegates from Virginia, in obedience to instructions from their constituents, that the Congress should declare that these United colonies are, and of right ought to be, free and independent States, that they are absolved from all allegiance to the British crown, and that all political connection between them and the state of Great Britain, is, and ought to be, totally dissolved; that measures should be immediately taken for procuring the assistance of foreign powers, and a confederation be formed to bind the colonies more closely together. Saturday, June 8, the Congress proceeded to take into consideration the motion of the Virginia Delegates, and referred it to a committee of the whole, and passed that day and Monday the 10th, in debating on the subject.

It appearing in the course of these debates, that the colonies of New York, New Jersey, Pennsylvania, Delaware, Maryland, and South Carolina, were not yet prepared for this step, but that they were fast becoming so, it was thought prudent to wait awhile for them, and to postpone the further consideration of the subject to July 1st; but that this might occasion as little delay as possible, a committee was appointed to prepare a declaration of independence. The committee were John Adams, Dr. Franklin, Roger Sherman, Robert R. Livingston, and Thomas Jefferson. The committee requested Mr. Jefferson to draw th
declaration, he performed that duty, and i
being approved by them, was reported t
the House on Friday, the 28th of June,
read and laid on the table. On Monday
the 1st of July, the House resolved itsel
into a committee of the whole, and resum
ed the consideration of the original mo
tion made by the delegates of Virgini
which, being again debated through th
day, was carried in the affirmative by th
votes of New Hampshire, Connecticut
Massachusetts, Rhode Island, New Jerse
Maryland, Virginia, North Carolina an
Georgia. South Carolina and Pennsylva
nia voted against it. Delaware had bu
two members present, and they were div
ded. The delegates from New York de
clared they were for it themselves, an
were assured that their constituents wer
for it; but that their instructions havin
been drawn twelve months before, whe
reconciliation was still the general objec
they were enjoined by them to do nothin
which should impede that object. The
therefore thought themselves not qualifie
in voting on either side, and asked leave t
withdraw from the question, which wa
granted. The committee of the whole the
rose and reported their resolution to th
House. Mr. Edward Rutledge, of Sout
Carolina, then requested the determinatio
might be put off to the next day, as he be
lieved his colleagues, though they disap
proved of the resolution, would then su
port it for the sake of unanimity. Th
ultimate question, whether the Hou
would agree to the resolution of the com
mittee, was accordingly postponed to th
next day, when it was again moved, an
South Carolina concurred in voting for i
In the mean time, a third member cam
in from Delaware, and turned the vote
that colony in favor of the resolution.—
Members of a different sentiment came i
that morning from Pennsylvania, an

hanged her vote, so that the whole twelve olonies authorized to vote at all, gave their oices for it, and, in a few days, the Conention of New York, then in session, aproved of it, and thus supplied the void ocasioned by the withdrawing of her deleates from the vote on the resolution.—he debates having taken up the greater art of the 2d, 3d, and 4th days of July, ere, on the evening of the last day, closed; e declaration was then reported by the ommittee, agreed to by the House, and gned by every member present, except r. Dickinson, of Pennsylvania.

Upon the authority of Mr. Jefferson, we ve this compressed account of the origin, ogress, and final declaration of indepennce, for the purpose of correcting some roneous statements of the proceedings on s interesting subject, which have been en to the public in latter times by the s-bag Fourth-of-July orators. The origl motion of the 7th of June, by the Viria delegates, that Congress should dere the colonies independent, and the deration itself, have been often confounded.

On the 4th of July, 1860, in our native te, we shall hear the songs of triumph, shouts of jubilation, and the roar of non, in celebration of the 84th annivery of the great charter of the rights of n. May the spirit of '76 be rekindled that day in the bosom of every patriot, ry friend of the Union, and every supter of the Constitution. May they swear the altar of their country to preserve Uniou, the corner stone of which was by Washington himself, and cementby the blood of our Fathers, at all haz. To do this, my countrymen, you t lay aside all sectional feeling, know North, no South, no East, no West—aside all who have sought the Presicy. Unite upon some good man, and —too honest to be a demogue, with e enough to administer the government upon its true principles for the benefit of all. Reader, have you ever visited Independence Hall? Every American, native or naturalized, should at least once look upon this sacred temple of our national freedom, and on his knees return thanks to the Creator and Sovereign of the Universe that his lot has been cast in a country of civil and religious freedom. Look upon the figures of those who declared our Independence, pledged their lives, fortunes and sacred honor in support of it, and took part in the great struggle which ensued and resulted so gloriously. Then view the whole interior, examine the old chair and other relics; the marble block designed for the Washington Monument, and why, countrymen, have you not placed it there? The old State House bell—

> Thy magic tones were first to tell,
> In thunder peals a nation's free.

On it is the inscription: "Proclaim liberty throughout the land, and to all the nations thereof." This bell was cast twenty years before the Declaration of Independence.—How prophetic then the inscription.

Reader, picture to yourself the scene which surrounded the old State House on the evening of the 4th of July, 1776.—The entire population of that quiet city was in view, awaiting the result of the deliberations of that convention, (the like of which never met before and will never meet again on earth) then deliberating the question of their and our Independence. Behold the old man standing on the roof, holding on to the rope, ready to ring the old bell when the news of the adoption and signing the Declaration shall be announced—view the little boy running out of the old State House, and with a voice raised to its highest pitch, crying out, old man, ring the bell—hear its tones, for they have never ceased to ring in the ears of every true-hearted American—they crossed the Delaware, went over the Atlantic, and were heard in the State House of George the third—the idiot king. Call to mind the struggle that ensued, the sacrifices made, the blood shed, the lives lost, and then tell me whether you would be instrumental in dissolving the Union?

Who among us that never felt the spirit of '76 stir within him when reading the life of Washington and the history of the revolution? Who among us that never felt the soul kindle at the thought of one man's working out the deliverance of his country? Who among us that never exulted in the contemplation of all that is sublime in human enterprise, when recalling to mind the men who first conceived the idea of our independence? Who among us that does not venerate the memory of those patriots that decided that this nation should be free, and freely redeem the pledge they had given, to consecrate to it their lives, their fortunes, and their sacred honor? If there be such a demon incarnate among us he could behold the Union slide without an effort to prevent it.

> "Patriots have toiled, and in their country's cause
> Bled nobly; and their deeds, as they deserve,
> Receive proud recompense. We give in charge
> Their praises to the sweet lyre. The historian muse,
> Proud of her treasure, marches with it down
> To latest times; and sculpture, in her turn,
> Gives bond in stone and ever-during brass
> To guard them, and immortalize her trust."

Countrymen, after the establishment of our Independence, the free, sovereign and independents, having absolved themselves from all allegiance to Great Britain, met in convention, formed and adopted a constitution. For what purpose? "We, the United States, in order to form a more perfect union, establish justice, ensure domestic tranquility, provide for the common defense, promote the general welfare, and secure the blessings of liberty to ourselves and our posterity, do ordain and establish this constitution for the United States of America." Will you not defend this bulwark of our liberty? It rests on the Union, dissolve it, and the last refuge of human freedom will be no more. Then throw yourselves as a barrier before the horde of sectional fanatics and contend unto death for the liberties of America, and history shall record your achievement among the noblest proofs of the dignity of man. The Union is the Thermopylæ of our Independence. Have we no Leonidas with his three hundred, ready to occupy the strait and oppose the march of Xerxes and his followers, seeking the dissolution of this Union? We have.

To Our Subscribers.

The present No. commences the second half of the third year's issue of the North Carolina Planter. It gives us pleasure to say that our list of subscribers is now larger than it has ever been, but instead of having some thirteen hundred subscribers, we ought to have quite as many thousand—or at least five thousand. And we appeal to the noble and patriotic men who have given us their patronage, to also aid in extending its circulation among their neighbors, and thus increase its support so as to enable us to make such improvements in its size, and all other respects, as will place it in the front rank of Agricultural Periodicals in the country.

It has been the aim and object of its Principal Editor, to fill its pages with *solid, substantial* matter, both in regard to scientific principles and practical experiments. It would have been a much easier matter for him to have selected from the many theoretical and ephemeral articles which he has found in his exchanges—many of which are of doubtful utility, and more still in direct violation of scientific principles and practical experiments—we say we could more easily have filled our pages with such—but we preferred furnishing our readers with something that was *reliable* and that would make the N. C. Planter a *text book*, that could be consulted with confidence and profit.

To this end, we have spared no expense procuring works of the best established eputation, nor research in selecting matter best calculated to enlighten our readrs, and best adapted to southern agriculure, in soil, climate and products; so that ur pages may be consulted at all seasons r valuable and reliable advice and instrucion. If we have been successful in these espects, our highest ambition is gratified.

And now, we trust, we may be pardoned r requesting our readers to aid in increasg the circulation of the N. C. Planter.—ach one of our present subscribers can rocure at least one, two or three others, y a very little exertion. We have not ored our readers with appeals for *help*, his year, and hope they will respond to his gentle application for a little " aid and omfort "—now.

County Fairs.

We notice that the County Societies re moving towards their arrangements for olding their Agricultural Fairs the ensug Fall. The Sampson County Society ave issued a handsome Pamphlet list of Premiums, which for variety and liberality eflect honor upon the public spirit of the ociety. For a copy of the list of Premims, address J. W. Eager, Sec., Clinton, I. C.

The Cumberland Agricultural Society as also issued its programme of proceedgs, which promise to keep it where it has lways been, in the front rank for enterrise and liberality.

The Wayne County Fair promises to be n the most extensive scale. The Fair rounds contain about twenty acres, and is ituated just without the limits of the town f Goldsboro'. The buildings are large and eculiarly adapted to the purpose designed, nd the premiums offered, it is said, will be s large or larger than those offered by any ther Society in the State

The Mecklenburg and Rowan Societies seem likewise busily engaged in their preparations for their respective Fairs, which will doubtless be a credit to their patriotic and public-spirited citizens.

We have received no direct information in regard to other Societies, but should the Secretaries, or other officers, see fit to communicate with us on the subject, it will afford us great pleasure to lay the same before our readers. It is our great desire to make the North Carolina Planter the organ of communication for our State Society, all our County Societies, and the individual Agriculturists of the State. We earnest solicit the aid and co-operation of all who feel interested in the industrial pursuits of our State, both in the way of communications for our pages, and in the increase of its subscription list.

Ruta Baga.

Although we regard the month of June as the best time for sowing this turnip, it will still succeed well if sown in July, especially during the first half of the month. As the wheat harvest is now completed, we take the liberty of calling the attention of our friends again to this subject, and urging them to make preparation for planting an acre or more, according to the amount of stock on their farms. For milch cows, sheep and hogs, the ruta baga is invaluable; and for the table it is at least equal to the common turnip.

"The Plantation."—This is the title of a new Quarterly Journal, the receipt of the first No. of which is acknowled with much pleasure. The articles in this No. more especially relate to the political rights and interests of the South, and are bold and out-spoken in their sentiments. We like it, and commend it to the patronage of our readers. Address J. A. Turner, Esq., Eatonton, Ga.

An Extract,

From the Address of Hill Carter, Esq., *before the Virginia Central Agricultural Society of Virginia, in* 1859.

"In 1816 I took possession of a poor, exhaused James river plantation, which had been originally good land, but very much exhausted by bad culture, under the management of ignorant overseers. I found the land in three shifts, *corn*, *wheat*, and *pasture*, with some indifferent cattle, and sheep, and a few hogs, all grazing the third field, so as to make the third shift, and what was called the resting year—the most exhausting part of the system. I was young—not being of age—and just from sea. Of course I knew nothing about farming, but I soon saw that there was a want of system in everything—no regularity of hours, no measuring in and out, no day-book, no journal, no reckoning kept. It was so different from sea-service that I began to fear the ship was in a bad way, and would soon founder, if not at sea, at least on the river. So I began to enquire and read some little about farming, and fortunately met with the Philadelphia Agricultural Memoirs, and my old friend John G. Mosby, who, by-the-by, is entitled to the credit of introducing the four-shift system and clover on lower James river. I soon found that land could be cultivated in other ways than three shifts, and that the whole system was wrong; and in a year or two I changed overseer and system both. The first change I made was to turn out the poorest field, and convert it into a standing pasture for the cattle, sheep, &c., and laid off the other two fields in four shifts or fields, and sowed one each year in clover, and plastered the clover heavily; the clover and plaster acted finely, and the crops improved rapidly under the milder system of four fields and a standing pasture for the stock, which allowed all the clover to be turned in, the cattle not grazing the clover for several years, until the land acquired a sufficient quantity of vegetable matter——the very thing it most needed after so long and scourging a system as it had undergone for many years. After improving the four fields by clover and plaster for several years, and reaping tolerably good crops, I found that the land became too full of vegetable matter, and required grazing again. I then took up the standing pasture, changed the system into five fields—the standing pasture having very much improved from rest and cow-penning in the meantime. I continued the five-field system, with partial grazing, for several years, with tolerable success, until Mr. Edmund Ruffin induced me to try the marl from his farm in Prince George county, which acted like a charm. I continued the use of marl for several years, but finding it very laborious to transport, it being across the river, and eight or ten miles off, I commenced using lime; first, by buying oyster shells and burning them in a kiln of wood; and after oyster shells became difficult to procure, I commenced the use of Northern lime, and have continued it ever since, in moderate quantities, liming regularly one shift or field in the rotation each year. The improvement from clover and plaster of Paris alone was considerable, particularly upon the wheat crop; but the land began to get clover sick, and frequently failed to produce good clover, and of course the wheat crop suffered, for they go together, but after marling and liming, the clover rarely failed, and the crops regularly improved, particularly the corn crop, which has doubled since marling and liming were introduced, and both wheat and corn crops have quadrupled since 1816, when the three shift and hard grazing system was abandoned. I attribute whatever success I have achieved, to constant and strict attention to my business; to my lands, negroes and overseers; to a systematic habit I acquired at sea, of keeping regular account of every thing on the plantation, (never selling, feeding or using a grain of anything not measured and entered in my books,) and I can tell by referring to them for forty years back, every bushel of corn, oats, &c., consumed yearly on the plantation by negroes, horses, cows, hogs, &c., and every dollar expended for plantation and negroes, as well as myself and each member of my family, &c.; to adopting an ameliorating system with frequent grass crops; to the use of plaster, marl and lime; and to constant attention to plantation manure, of which a great deal is made and used. To these, I repeat it, I am indebted for whatever success I have attained, and I would advise others to pursue the same course, especially in husbanding with great care the resources of the farm, for making manure, and to stick to old Virginia and make her flourish.

"I am now about to change my system back to four fields again, believing, as I now do from many years experience, that after you have improved your land to a certain extent, (if alluvial or flat land,) that the four field system is the best. It certainly will make more wheat, and nearly as much corn to the acre; and as it affords more land in each crop, it will make more produce, and, provided the land improves under it, must be the best system. But the land must be either good or improved, level or alluvial land, to stand the four field system, or it will not answer; and you must use good management in manuring, liming, &c., or it will fail; but, with that, I believe it is the best system. The advantage the four field system has over the five is, that it is a more cleansing system—the hoe crop (corn) coming round more frequently, keeps the land cleaner which is all-important in any system. The next advantage in the four field system is, that you turn in a clover ley more frequently, which is highly improving, and at its best stage too for fallowing, which is all-important; and the third is, that you have more land to cultivate, and provided you have sufficient labor, your returns will be larger. But you cannot support so much stock, and you will have to substitute straw in some measure for manure, by covering the land with it, which, as it is becoming a prevalent opinion that it is the best mode of using straw, is no objection to the system. Coke's, Lord Leicester's, four field system, so generally adopted in England, is a very similar one, substituting turnips and barley for corn and wheat, and using more manure than we can afford to do.—The English system on heavily manured land, is turnips, barley, clover, wheat—our system is corn, partially manured or limed, or both, wheat, clover and wheat. The corn crop is a more exhausting crop than turnips, but it affords a good deal more of offal for manure, and makes up in that way; and as a bread crop for our negro population and teams, is invaluable. But do not understand me as recommending the four field system for any but rich or highly improved, and flat or alluvial land. It will not answer for hilly, or rolling, or weak land; *they* should have a more extended and ameliorating system, viz: five, six or seven fields, according to circumstances as mentioned before, so that the more frequent grass crops will intervene, and prevent washing, and restore the fertility exhausted by grain crops, tobacco, grazing, &c. I have been cultivating under the five field system twenty years, after having previously cultivated twenty years under the four field system, and I now return to the latter system because my land is sufficiently improved, I think, to stand it, and make more profit under it, and perhaps continue, with good management, to improve under it. I think, under good management, on good land, where heavy crops of corn and wheat are made, you may manure an entire field, or fourth part of the land, each year, under the four field system. That is to say, you can cover with the spare straw and the manure of the plantation one fourth of it annually; and if so, it must be an improving system. The fact is, all land should be manured regularly at intervals; and no system is a good one which does not admit of manuring at least one field in the rotation annually; for, after all, manure is the mine of agricultural wealth.

"The improvement in agriculture in Virginia, for the last twenty years, particularly in lower Virginia, has been considerable; and the agricultural fairs of the State are entitled to a good deal of the credit; but there is great room for improvement, and I have no doubt if the fairs continue to be encouraged as heretofore, and our young and enterprising men will only stick to old Virginia, she will flourish and become the first in the Union, as she once was; and God grant she may be again, is the prayer of your humble servant."

P. S. I have been informed that there was dissatisfaction expressed at the Central Agricultural Society when I delivered this address, that I did not enter more into detail about my crops, &c.; and I have been requested to do so, but as I said before, I think it would be egotistical to talk so much about myself, as it would be necessary to do if I did that; I will merely say, therefore, that when I took charge of the management of my plantation the best crops of wheat were about 2,000 bushels, and of corn 500 barrels; and my best crops of wheat, since I improved the plantation, have been over 8,000 bushels, and of corn over 2,000 barrels; so I have quadrupled the crops, as I said before.

For the N. C. Planter.

Sheep-Shearing.

The Annual Public Shearing of the flock of pure bred Merino Sheep of Gen. John S. Goe, was held at his residence 4½ miles east of Brownsville, Fayette Co., Pa., on Thursday, the 31st of May, in the presence of a large number of woolgrowers and other citizens, at which time the meeting was organized by electing Geo. E. Hogg, President; H. W. Gaddis and John Woolf, Secretaries.

On motion, the President appointed Messrs. Levi Colvin, John Hess, James Ewing, Maj. Clark Brading, Isaac Wiggins, John Cornwell, Clark McDougal, Wm. Calvin, David Dayesmond and Jas. Higgenbothem, a committee to superintend the shearing and weighing of the fleeces, and also to examine his stock of horses and cattle.

REPORT OF COMMITTEE.

The committee respectfully report that they have examined Gen. Goe's flock of Spanish Merino Sheep, and are of the opinion that they cannot be surpassed, if equaled, in western Pennsylvania. Below will be found the weight of fleeces of a part of his flock.

They further report that his stock of horses are fine, and have been selected and bred with great care, and consist of the celebrated horse "Bush Messenger," also Messengers Membrino, Bashaw, Morgan and Blackhawk, mares and colts.

His stock of Short Horned Durham Cattle are thorough bred, (among which may be found his celebrated bull, Conqueror;) they are all well worthy the attention of stock raisers.

In short your committee are unanimously of the opinion that Gen. Goe is entitled to the thanks of the community for the great exertions he has made in procuring and breeding the very valuable assortment of stock which he now has on his farm.

[Here follows a list of the weights of fleeces of 30 Spanish Merino ewes, washed, averaging 6 lb. 2 oz; and 44 Spanish Merino fleeces, unwashed, averaging 8½ lbs. The fleeces of 3 bucks, weighed 13 lbs, 5 5 oz., 12 lbs. 6 oz., and 13 lbs. 3 oz., respectively.

They were all so nearly the same, in the several classifications, that the above abstract will answer every useful purpose.— The result is highly creditable to Mr. Goe.

LEVI COLVIN,
Chairman of Committee.

NOTE—The fleeces were only one year' growth and under.

On motion, it was resolved that the proceedings of this meeting, together with th report of the committee, be published i the papers of this county, and also in th different agricultural Journals in the Union.

GEO. E. HOGG.
H. W. GADDIS, } Sec's.
JACOB WOOLF, }

On Marls.

The following Communication was received several months ago, and we laid i aside for publication; but by some mean it was misplaced and we could not find i at that time. Looking over some old letters recently, we came across it; and as i is on a subject of importance to many o our readers, it will be found of interest even at this late day.

By the way, the writer sent a club of 3 subscribers along with the communication—thus setting two examples worthy o imitation, viz: one by writing for the page of the Planter, and another by sending with it tangible evidence of his interest i its success. We beg his pardon for th accidental delay in the appearance of his article, return him our thanks for his kindness, and hope to hear from him again in both respects.—ED. N. C. PLANTER.

MR. EDITOR: I see "Brunswick" requests some light on the use of Marls; its benefit to the soil, and the crops that follows its application. As I have been using it for the last fifteen years, I will give him my practice and experience:

I commenced on the low lands of Tar River—about a medium land—not very light nor very stiff, but worn down very poor, producing only one-and-a-half barrels of corn per acre: for cotton it was not fit for cultivation. I applied 300 bushels Marls to the acre, spread it over the land as even as I could, (the marl yielding bout thirty per cent. lime) broke the land vith a one horse turn plow, laid off the he rows for cotton 3½ feet apart, applied rom 100 to 125 loads of compost to the cre in the drill, (about 5 bushels to the oad,) run a turn plow on each side of the irrow, which made a ridge—planted cot- on on the ridge, cultivated in the cheap- st way I possibly could, so as to keep the rass out and the soil loose to a proper epth, and the result has been at least 000 pounds of seed cotton per acre every ear the land was in cotton, and that was early all the 15 years spoken of; and when ie land was not in cotton it was in corn : oats : the corn yielded about 5 barrels er acre.

I will say for the benefit of those who iltivate fine land, that I have a field of out 70 acres of as poor sandy pine land a crow ever flew over, which I treated the same way, and the result has been om 900 to 1500 pounds of seed cotton r annum for ten years in succession.— ie application of marl was the first year ly; after that no more marl, but the mpost, every year that the land was anted in cotton.

I have made some experiments in marl- g, and that was to take a piece of land all the same quality and manure it all over d then marl about one half of it. I ed this on both river and pine lands, and result was about the same on both, l that was at least 3 pounds of seed cot- i on the land that was marled and man- d, to one pound on the land that had manure and no marl.

will give, as I believe, a better plan of ng marl than I have pursued myself; t is, I would apply 200 bushes of marl l let the land rest once in two years, and no kind of stock go on the land, and er burn off the grass and weeds, but w them in and apply the compost every e the land is cultivated. Then the marl ild have the vegetation with the com- t to act on, and the result would be ch greater. BAKER STATON.

dgecombe county, N. C.

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EW VEGETABLES.—The Pine-apple Short- Beet is a most superior variety. The gmore Protecting Broccoli, is a superior ly, dwarf white variety; the striped ple Egg-Plant is as good as the purple, more ornamental.—*Hovey's Magazine.*

For the N. C. Planter.

Agricultural Pursuits.

An able writer on biography, remarks that all great and good minds seem to delight in agricultural pursuits. We are inclined to admit the truth of such an observation; but perhaps it is a difficult task to advance a very satisfactory or philosophical explanation of the cause. The objects of the external world that surround us in the retirement of a farm, exerts, no doubt, a happy influence over all our thoughts, thus conducing in no little degree to serious reflections. The blooming flowers— the music of the birds— the myriads of insects sporting in the air, amid the golden rays of the sun—are well calculated "to extract a sentiment of piety," even from the unregenerate soul, and to excite in the christian the most holy emotion. In proof of this position, we may quote the authority of the most sacred writers, and even our Savior himself. In that part of the admirable Sermon on the Mount, where the disciples are warned against covetousness, he exclaims, "Behold the lilies of the field; they toil not, neither do they spin; yet Solomon in all his glory was not arrayed like one of these." Every star that glitters in the unmeasured immensity of space, detaches us from the world, and in the splendid diction of Chalmers, "lights us in lofty abstractions above this little theatre of human passions and human anxieties." When the pious Psalmist, in the fullness of his heart cries out, "What is man that thou art mindful of him, or the son of man that thou shouldst deign to visit him?" he was gazing with the rapture of a christian, and the ardour of a devoted lover of nature's works upon a beautiful moon-lit night. The silvery orbs that deck the vast concave of haven were sending their soft cheering rays to earth, presenting a scene admirably adapted to induce a train of moral reflection.

That Agriculture is an occupation, the most suitable of all others, to primal innocence, the most congenial to the taste and disposition of uncorrupted human nature, may be predicated from the simple fact, that it pleased the deity in his providence to locate our first parents in paradise, to till it and to keep it. A garden was assigned to them as their dwelling. In their own delightful Eden, breathing the pure air of heaven, enchanted by the novelty of the scenes around them, with no objects of care or toil to weary the body or harass the mind, saving a slight degree of attention requisite to the dressing of fruit trees, which promoted amusement and health, Adam and Eve must have been inconceivably happy.

It is plausible to conjecture, that no poet or novelist in their loftiest flights at discription, ever pictured a home so lovely and enchanting, as the one in which were placed our original progenitors. The lover's cottage, amid trailing vines and bowers of choicest flowers, "mingling their colors and rich perfumes;" amid rippling rills, and landscapes presenting the varied beauties of the flood, field and forest, is a dull, prosaic, unromantic spot, compared with the first abode of man, encompassed, as it undoubtedly was, with all possible charms and inconceivable delights.

But the period of perfection was transitory. Adam soon fell from his high estate, satan, with infernal cunning having devised the method of his destruction. He was then driven forth to earn his bread by the sweat of his brow. Thorns, thistles and noxious weeds sprang up, making his labors manifold and troublesome. But though we live in a fallen world, a fact established not only by the Bible, but by arguments drawn from natural things, as for instance the difficulty of providing and rearing everything of high excellence, still our purest pleasures are derived from Agricultural pursuits.

Roscoe, an accomplished gentleman and profound scholar, says, "If I was asked whom I consider the happiest and best of the human race, I should answer, those who cultivate the earth with their own hands."—We shall not attempt to analize the rationale, or to divine the cause. Suffice it to say, that in the retirement of the farm, far removed from the hurry and bustle of city life, and from its numerous temptations and misdeeds, we are more disposed to "look through nature up to nature's god." "God made the country, man makes the town."

Some of the best and wisest men of every age, have delighted in the cultivation of the soil. The King of Judah loved husbandry. His possessions embraced a large extent of land in the low country and the plains.—Elisha, when found by Elijah, was busily ingaged in ploughing oxen. The language of the wife, in the Songs of Solomon, is in favor of rural happiness: "Come my beloved," says she, "let us lodge in the villages; let us get up early to the vineyard; let us see if the vine flourish, whether the tender grapes appear, and the pomegranates put forth." She was desirous of flying from the din and tumult of cities, for the sight of men divided her attention from home.

The Roman history presents the names of many of her most eminent sons, who contributed by their writings and experiments to the advancement of this noble art or science. Virgil, who was so ambitious of immortality that he composed every line in his beautiful productions slowly and with the utmost care, condescends to give us in his Georgics much information in regard to the mode of tillage practiced by his countrymen. Among others distinguished by their literary attainments and pure patriotism, stands the name of th great Cato, who has handed down to u many principles, the observance of whic will insure success in the cultivation of plants Q. Cincinnatus, when called upon by th proud embassy sent from the Roman Senate to preside over the destinies of the nation i the capacity of absolute Dictator, was foun "industriously labouring" with his own hand on a small field of a few acres. After a splendid victory, which saved his country, he retires to his little patrimonial estate, withou receiving a cent of the valuable spoils of war satisfied with the consciousness of havin performed his duty. It is said to be a fac that in the palmiest days of th's great commonwealth, "when they praised a good mar they called him an Agriculturist and a goo husbandman; he was thought to be ver greatly honored who was thus praised." Indeed, such was their devotion to this impo tant art, that some of their noblest familie were named after vegetables, in the cultiv tion of which their ancestors excelled. I the prolific weakness of superstition, the even conjured up numerous deities, to pr side over their crops in every stage of growtl from the time of sowing till that of reapin

The polished and discerning Greeks, we no less devoted to agricultural pursuits tha were their neighbors, the Romans. Som of their greatest heroes, whose names a connected in glowing colors with the brillia achievements of the Trojan war, aided wit their own hands in the operations of th farm. According to Homer, the father o the mighty Ulysses was among this number

Come we up to modern times, to our ow fine country, and we shall find facts in cor nection with the history of great men, tending to establish the correctness of the proposition with which we started: The domesti details of our own beloved Washington, te us of his early rising, before the lark was u —the visit to the stables, always occupied b stock of superior blood—the ride over h extensive possessions, from breakfast till di ner, which took place precisely at the hou of three. Thus after leading his countr through the roar of the revolution, then fil ing the highest office in the gift of his fe low citizens, with his brow wreathed wit laurels, he retires to the shades of his ow dear Vernon, and in the language of Ha "acquires the reputation of being one of t most industrious and intelligent Agricult rists of his country."

Macon, of this State, distinguished alik for high intellectual endowments, simplicit of manners and pure, unsullied patriotisn was passionately fond of agriculture.

To multiply examples is needless. If ph lantplanhropic s, benevolent enterprises an liberal sacrifices made for the interest c mankind, rather than that of individuals or parties, constitutes the greatness of great men, then may we truly rank the Agriculturist among the most prominent and unselfish, moral and political heroes of the world. They have ever been the first to leave the plough in the furrow, the cheerful fire-side which they so dearly loved, and as a brave band of volunteers nobly contend for the political and religious foundation of this country. They have ever been among the first to enter the almost impenetrable forest, in order to make it a land flowing with milk and honey, to them who should possess their dear-bought heritage. Daniel Boone, the first settler in Kentucky, when he left his happy home and family, amid the quiet hills of our own Carolina, was influenced, not by a love of some rash undertaking, or bold reckless adventure, but by a disinterested zeal for mankind, which prompted him to make the first effort to convert the western wilderness into an Eden for future generations. He was an ardent admirer of nature. Her mild sylvan scenes filled him with rapturous transports. When encamped in view of the beautiful Ohio, and the distant mountains, piercing the very clouds with their rugged summits, in view of boundless plains and trackless forests, every melancholy thought occasioned by his absence from home was entirely dissipated. The pleasures of the crowded city, with its marble palaces and stately structures, wealth, beauty and fashion, were to him dull and insipid, compared with the thrills of delight he experienced amidst wilderness wilds, surrounded by howling beasts and yelling, blood-thirsty savages. There you see one of Nature's Noblemen, loving his home, his family, himself—loving the wild scenes of nature, but above all Nature's Creator, and desiring to give all possible aid in making the world an Eden for unborn millions.

CATO.

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INARCHING WILD GRAPES.—Now that grape culture is attracting so much attention, an article in your *Monthly* on layering the wild vines, and engrafting the choice new American grapes on wild vines, along the fences and woodsides, thus securing in a single season strong vines and a heavy crop next year, would be a good idea. A successful cultivator recommends the last of May for this section, when the vines will cease to bleed. This engrafting, budding and inarching may be continued during the summer and autumn. I have had splendid specimens of pears and other fruits from late summer and autumn grafting. Fruit-bearing shoots may be taken from feeble vines or trees, and put on strong ones, with a certainty of having fine specimens of fruit next season.

Horticulture.

Notes From the South.

SOUTHEN NURSERIES, Adams Co, Miss.,
April 4th, 1860.

Thomas Meehan, Dear Sir: Almost ever since the recipt of the first number of your excellent and spicy *Monthly*, I promised myself, and partly promised you, to give you some notes on that vexed question, the *Cultivation of the Pear, in its dwarfed form on Quince.*

I well remember seeing some fine, thrifty trees of Pear on Quince, during my boyhood, in the Old Country. Had, also, seen some good specimens North. Had read all that had then been written on the subject. And, finding it extremely difficult to secure good seedlings as stocks, and being determinedly opposed to the use of those abominations, *suckers*, I got in a goodly lot of cuttings of the common Apple-quince, and used them as stocks, until I procured the *Angers*. And, by the way, though there are some sorts that do no good upon the former, that thrive well upon the latter variety, there are still others which succeed to perfection on the Apple-quince. I have four trees of *Bartlett*, now some twelve or fourteen years old, which have borne full crops of magnificent fruit each year of the last ten; and they were worked on apple-quince. I however, greatly prefer the Angers to any other.

Let me premise that I have been limited here to forty acres of originally poor, and washed hill lands. There were, embraced in this, some three or four acres of bottoms, originally of the richest soil possible. These, by deep trenching—turning down the clay which had washed over the original soil—and by underdraining; and the hills by trench-plowing and manuring, have all been made suitable for the growth of young stock. But I had very little to spare, suitable for fruit-bearing trees.

One small slope, dipping to the South perhaps one foot in five, covered with a close crop of that most invaluable of hay and pasture grasses, but most terrible of pests in crops of any kind—*Bermuda Grass*, as we wrongly call it, (the DOOB-GRASS of the Hindoos; the *Cynodon dactylon* of

Botanists). I trenched two spades deep, loosening up the bottom of each trench with the grubbing-hoe and fork; and there, the following season—the Bermuda grass being thus conquered—I planted a small orchard of some 300 Dwarfed Pear trees, of as many sorts. The ground is divided into five beds; the six-feet walks between the beds, being carefully laid off as *guard drains*, with a fall of one inch in ten feet, and emptying into a large pond; and the rows of trees being planted as nearly on a level as possible. For, be it known, that our soil, here, melts like brown sugar!—And this melting and washing away have to be guarded against by every possible precaution.

About a hatful of broken bones were used in planting each tree; no other manure. But on the two upper beds, and the ends of all but the lowest, being somewhat poor, a good barrowful of rich, fresh, black soil, from a hill-side, the growth of which was originally *Magnolia grandiflora* and *Liriodendron*, was given to each tree there planted. I find, too, that the trees in the upper row of each bed, and especialin the bend of the walks, where some deposit is made, are by far the most vigorous and handsome; but not always the most productive.

The whole of the stock was covered about an inch; two would have been better upon sloping ground.

A good many sorts have died; and of these, unfortunately, correct notes were not always kept. The trees were planted during the winter of 1851-2, being then of two years' growth from the bud. Some few have been replanted since then. They were placed about twelve feet apart each way.—Have had but very indifferent attention in the way of training and pruning; and now need the knife very much indeed. Little or no manure has been applied, except once to the two upper beds, which produced such an exuberance of growth, as to lead me to root-prune the trees in these two beds, two winters ago; and last year they bore and ripened a heavy crop; and this year have already *set* an enormous one.—Once a year the ground was dug, and the Strawberry plants, which occupy the ground, replanted. The trees are nearly all branched very low; in many cases sweeping the ground. These trees, with few exceptions, grow and bear best. In almost every instance, the diameter of the Quince stock is nearly double that of the Pear at the surface of the ground. In some few cases, the soil having washed from around the tree and could not well be replaced, the tree was let down a few inches, by digging around and forming a good sized ball, bu cutting all the larger roots. The resul was always an increased productiveness. I have filled up several vacant spaces, wit large bearing trees from other parts of th grounds; with no injurious results-what ever to the trees transplanted. Once o twice during the summer, the ground i hoed over. So prodigiously heavy is th crop now set upon these trees, with rar exceptions, that it is my intention, so soo as it can be done, to mulch with a goo coat of stable manure, that has been exposed to the weather all winter. If I ha the *Guano*, they should first have a goo *soak* or two of a weakish solution of tha valuable manure. In either case, car must be used not to induce a too ran growth, else the fruit would certainly, in great degree be shed off.

A great majority of these trees hav borne fruit annually since the second yea they were planted. Some have ripene enormous crops. During the last five sea sons, I have, unfortunately, not been her from about April to May, until Septembe or October; my family, too, being genera with me in Texas. And, although I gav express orders that certain notes shoul be kept, and especially descriptive of th fruits grown on the premises, I have neve yet succeeded in having any thing done i that way, that was at all reliable or satisfa tory. And now I leave again in a fe days, to be absent until November. S that my notes upon the varieties will rela chiefly to their growth, comparative pr ductiveness, state of forwardness, in leafin out and in blooming at this date, &c.—They range, generally, from seven to fou teen feet in height, with a spread of branc es from six to twelve feet, and stems fro two and a half to seven or eight inches the ground. Although I have lost quite number of *Pears on pear*, from a sort blight, of the nature of which I am n sufficiently well-satisfied, even now, to spea knowingly; of *Pears on quince* I have lo very few indeed, and these I ascribe chie ly to a too free use of heating manures.—And you will find, in these notes, that ma sorts which Northern writers condemn on quince, or commend very faintly, do admirably well here.

You may note this, however, relative to the quality of fruit produced, that we have here *the* region of Pear growing *par excellence.* Such specimens of individual varieties I have never seen produced elsewhere. Our excellent friend, Marshall P. Wilder, will recollect, I presume, of *Seckel* which I handed him during the Fair of the National Society, at Louisville, two years ago, which measured from 8 to 8½ inches around! And I have had them still larger; and from dwarfed trees on quince. Although the finest specimens of Seckel I have ever had, were from grafts inserted in large, bearing Apple-trees, and which continued enormously productive for ten years or more, when they needed regrafting. We have had, here, specimens of *d' Angouleme*, *Winter Nelis*, *Beau present d' Artois*, *Bartlett*, *White Doyenne*, etc., etc., which would stagger your belief, were I to give you their dimensions.

The business of Pear growing, along the banks of the Mississippi, for markets, both North and South, is yet to be a vast one. And those will find it most profitable *who plant dwarf trees*—my neighbor Hebron's opinion to the contrary, notwithstanding! On the hills, where the preparation of the soil can only be done, and indifferently well done, with the plow, I should prefer the bulk of my trees on healthy, sound *pear seedlings.* Under no circumstances could I trust to trees worked on *suckers.* And these trees must either be grown in the South, or *maiden* trees, (those of one year,) planted, and *cut to the ground*, that they may here make a new growth.

And in planting orchards of dwarfed Pears, I should prefer the rows to run North and South, twelve feet apart, and trees seven to ten feet in the row, as to habit of growth. They will then shade each other, and the soil in which they grow, during a longer period of each day; whilst both sides of the row would get its share of light and warmth; and the trees being so trained and pruned as to form vast hedges, as it were, would be much less apt to lose their fruit from our frequent severe gales. Those of more spreading growth would require more space in the row than the upright growing sorts. And some such as *Bartlett, Gansell's Bergamot, Glout Morceau, Duchesse de Mars*, etc., I would plant in rows, with only nine feet between the rows and seven between the trees.

Just imagine extensive orchards of such trees, in a perfectly healthy condition, growing in soil which required no manuring or trenching, and nothing more than mere surface tillage, with perhaps a light mulching! Under, or other *thorough-drainage* might be needed, however.

As my net will contain the promised notes, I will close with the remark, that the past has been the most terribly destructive Winter on Southern gardens and nurseries ever experienced. Every thing at all killable was destroyed. And this because the weather just before the first killing frost, had been real spring-like, and every thing was growing vigorously. It has been a severe blow to Southern Nurseries. But one that most of use are resolved, if Providence permit, to overcome.

Pruning Fruit Trees.

May not the use of the pruning-knife, on fruit trees, be mainly dispensed with?

I have a few reflections to offer on this subject, the result of some reading and observation, and not a little dearly bought experience.

Let us take for example, a yearling Pear tree, as usually sent out from the nurseries; it consists, for the most part, of one long straight cane, from 2½ to 5 feet in height, and a few small, rudimentary side shoots, sometimes mere buds, from a few inches up to 1 or 2 feet from the ground. Generally we find the strongest of these laterals on *two sides only*, the effect of too close planting in the nursery rows. We have now to commence the frame-work of the future tree, and, according to the "directions in the books," we must cut down the leader one or two-thirds, and shorten in the laterals "according to their strength," to induce the weaker buds to push, or the dormant eyes to break, and thus form the base of a symmetrical, well-balanced head—but *every cut is a wound and every wound leaves its scar*, which may or may not heal over, but is quite likely to prove a source of future weakness, deformity or disease, especially if a *stump* be left, to decay and cause an unsightly scar. Thus, at the very outset, we commit an outrage upon the young plant, we do gross violence to its nature, and, unless we possess the skill of Barry or Debreuil, we shall soon not only *dwarf* but *deform* it altogether. The young tree expends its full energies an entire season, in producing and maturing 2 to 3 feet of leader, and a corresponding amount of lateral branches, (on two sides mainly,) which are remorselessly cut away, at the spring or autumn pruning, as entirely superfluous. The uppermost bud pushes out, the second year, nearly at right angles to the main stem; and then shoots up parallel to, but not in line with it; while the buds on the abscinded laterals start off at all sorts of angles, forming branches where, perhaps, they are not wanted, and which must be, in turn, reduced or removed at a subsequent pruning. After a second season's growth the leader is once more headed in, at a bud, (if such fortunately there be,) opposite the previous year's cut, so as to "bring the leader into line," and so of the laterals likewise. A continuance of this process will, in time, give us a main stem as crooked as a snake, and side branches fuller of elbows than a Chinese idol. We may, it is true, by the exercise of rare skill, obtain a tree of pyramidal or other desired *form*, but without a *single straight stem or branch* in its framework and whose *outline* has been obtained at the expense of *beauty of detail* and needless waste of energy on the part of the growing tree. I have, in my grounds, standard and dwarf trees of the Bartlett, Beurre Diel, and many other kinds, from the best nurseries in the country, and from 2 to 8 years old, which were all pruned "*secundum artem*," and are so scarred and distorted, by the free use of the pruning-knife, as to enlist one's sympathy for the wanton surgery they have undergone.

Pruning is, at best, contrary to nature, and should be done, I think, at such times and in such manner, as to offer the least possible violence to the laws of vegetable life. I believe that by judicious, well timed pinching or summer stopping, by the removal of superflous buds, the occasional insertion of a bud to fill a vacancy, and by bringing into place, by means of stakes, any straggling branches; we may obtain (in connection with well-timed root-pruning of too luxuriant trees) the highest possible result, leaving the pruning-knife to be used, as the surgeon does his scalpel, only to repair the effects of *accident* or *neglect* or to correct a *natural deformity*.

But, to be entirely effective, this treatment should commence in the nursery rows and with the tree from the bud, pinching off the leader and stronger laterals once or more during the early part of the growing season, when they will continue their growth in the same direction as before; the wounds will heal without scars, and the sap, thus checked in its upward flow, will be concentrated where it is required, for the development and full maturity of the lower branches and fruit spurs. No useless wood is grown, to be cut off at the annual pruning; but we obtain straight, handsome branches that are a pleasure to the eye.

There are many kinds of trees, as the Rostiezer, Marie Louise, Beurre Diel, and other pears, and several of the peaches, plums, &c., of such straggling, tortuous growth as to tax to the utmost ones skill in the use of the knife to bring them into shape. Handsomely formed trees of these varieties, obtained by knife pruning, are rare. Might they not be more easily and certainly obtained by the method above suggested?

We all know how very impatient of the knife are all the stone fruits,—how its disorts the branches of the plum, makes "brooms" of the cherry, and causes them all to "gum." By the practice of *thumb* and *finger* pruning these evils may in the main, be avoided and the earliest possible fruitfulness attained, without any injury, but rather a benefit to the plant. Further, I firmly believe that trees thus treated at the outset, if grown with *sufficient space* in the nursery grounds and *lifted with moderate care*, may be safely transplanted without the inevitable amputations, &c., which we are always advised by writers on the subject, but may be safely left to the annual summer stopping above suggested.

Much remains to be said, which perhaps may serve for a future article. A desire to provoke inquiry and experiment during the coming season and to elicit the opinions and experience of those skilled in fruit culture has been the leading motive of this communication from a mere NOVICE.

CARROT PIE.—Wash and scrape the carrots, boil till soft, sift and prepare like pumpkin pies; many think them superior to pumpkins. They may be made with or without eggs. E. E.

For the Ladies.

FLORICULTURE.

Greenhouse Plants.

Primulas—If not already sown, no time should be lost. It must be remembered these are for winter display; therefore, be sure to have enough; be careful the drainage to the seed pan is good; also, when putting them off into small pots, when they have three leaves is the best time to do this. Do not keep them too wet, or they will drop off.

Cineraria.—Beds of this plant may be sown as soon as can be done. Sow in shallow pans or pots, in a moist, shady place; supply water freely, as this plant delights in moisture. Bear in mind, the stronger the plants, the more pride and satisfaction will be felt when the season of blooming arrives. Soil—two-thirds leaf mould, the remaining third equal parts sand and maiden loam; we mean by the last named, decomposed turf or rich mould; such as may be collected in locks of old fences, will be best suited to their wants.

Flower Garden.—Neatness and order are the principal requirements in this department, and cannot be too closely attended to.

Dahlias.—A plentiful supply of water will now be necessary. Never let them suffer in this particular.

W. H. HAMILTON,

Culinary Department.

Cabbage.—Now is the time to plant for winter use, as early in the month as possible. Those planted earlier in the season, will not keep as well as those planted now. Large Flat Drumhead, and Flat Dutch, are best for winter use.

Potato Onions.—Wherever this Onion is grown, if not already ripe, as soon as well ripe pull them up and expose them to the sun until they are thoroughly dry, before storing them away. If this is not attended to, they will rot. We have cultivated and seen cultivated many acres of this Onion, and have never seen a failure. It is the best Onion for the south we have ever seen or heard of, producing large tubers under ground; hence the name Potato Onion. Early in November is the time to plant, or in some situations October would be better.

W. H. HAMILTON.

The Lawn.

The present dry weather, has in many instances turned the color of the grass to an unhealthy green or light brown, especially in this the case on poor and shallow soils. This can be partially remedied where a supply of water can be obtained. Large resovoirs, placed in some out of the way place near the dwelling, to hold the rain water which falls from the roof of a house and out buildings, may be used with the most beneficial results to plants, flowers and trees, by attaching a hose to the resivoir, with very little labor; in fact, mere pastime. The Lawn, plants, flower beds, and borders, may be thoroughly watered as often as desired. A very small expenditure will set this thing in operation.

A great deal has been said and is still being said about the different kinds of Grass suitable for a lawn. We know location has a great deal to do with the success of the different kinds of Grasses; for instance, in this section of our State we find no one kind of grass to succeed so well as a mixture. Of these we have tried several, but now give the preference to R. Buist's mixture, of Philadelphia. Depth of soil is of great importance. We mean the soil should be broken up deeply and well manured, and every weed pulled out of the grass. The first year it should be frequently rolled and mowed, and well top-dressed every fall to allow the raius of winter to wash in the manure. Frequent mowing and rolling is the great desideration. When kept closely mown and rolled, few objects are more pleasing or give more enjoyment.

W. H. HAMILTON.

Wheat, although considered by some as a native of Sicily, originally came from the central table-land of Thibet, where it yet exists as a *grass*, with small, mealy seeds.

Tea Rose—Gloire De Dijon.

The following particulars are worthy of note at this time concerning this matchless Rose. I have twice before alluded, in your journal, to a Dijon bush which made an aggregate growth last season of 75 feet.—That bush is now, April 6th, pushing vigorously at the very summit of its long branches, many of the shoots being six inches long, and well filled with leaves, and is the most forward Rose bush on the place. The remarkable feature about it, is, that while the thousand of Tea, Noisette and Bourbon Roses on my grounds have been destroyed, to within two or three inches from the ground, this Rose bush should not have injured in the least, belonging as it does to the tenderest class of roses.—Imagine this monarch of roses a month hence, loaded with its huge globular and cupped flowers of incarnate and yellow, and salmon hues, each distilling a fragrance rivalling Devoniensis, and you have some conception of the value of Gloire de Dijon, hardly yet appreciated by our amateurs.

During the past twenty years, there has not been so much injury done to vegetation as in the winter just past, and nothing could more clearly establish this fact than the injuries done to the following hardy plants. The flower buds of the following trees and shrubs have all been killed, and the plants themselves much hurt:—Pawlonia Imperialis, Spirœa prunifolia, Pyrus japonica, Forsythia viridissima, nearly all the Peaches, Almonds and Apricots, and, what is very remarkable, the tree Pæonies are cut down to within three inches of the ground. All this mischief was done in January, when the thermometer fell to 10° below zero fahr., after a mild spell of weather. A Tea Rose that will so perfectly resist such a winter here, must certainly stand out unprotected very far North of this, especially if upon a wall. For the conservatory border, or for adorning the back wall of the conservatory or greenhouse, it is without a rival.—*Gardeners' Monthly.*

◆

TOBACCO,—THE N. C. PLANTER.—In noticing the June number of the N. C. Planter, we took the liberty to advise the editors to give, this fall, a series of articles on the culture and management of tobacco, suited to that class of farmers who know little or nothing of that particular crop, but who may have a mind to go into the business, and are kept back for want of the necessary information. In answer to our remarks, the editors have sent us the February and March numbers of the Planter, which contain the very sort of articles we suggested, but which we had overlooked at the time of their reception, or had forgotten; and the editors inform us that they can furnish the back numbers containing these articles. Any one having an inclination to go into the tobacco culture, would do well to send one dollar to A. M. Gorman, Esq., Raleigh, N. C., and order the current volume.—*High Point Reporter.*

◆

Strumous or Scrofulous affections, are the curse, the blight, the potatoe rot of mankind. They are vile and filthy as well as fatal.—They arise from contamination and impurity of the blood, and are to be seen all around us everywhere. One quarter of all we meet are tainted with them, and one quarter of these die of them: die foolishly, too; because they are curable. Ayer's Sarsaparilla cleanses out the Scrofulous corruption from the blood, renders it pure and healthy, and effectually expurges the foul contamination from the system. No longer groan under your Scrofulous disorders, since the irresistible Ayer has provided his masterly combination of curative virtues that he calls Sarsaparilla.—*Democrat, Waterbury Ct.*

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SCROFULA, OR KING'S EVIL,

is a constitutional disease, a corruption of the blood, by which this fluid becomes vitiated, weak, and poor. Being in the circulation, it pervades the whole body, and may burst out in disease on any part of it. No organ is free from its attacks, nor is there one which it may not destroy. The scrofulous taint is variously caused by mercurial disease, low living, disordered or unhealthly food, impure air, filth. and filthy habits, the depressing vices, and, above all, by the venerel infection. Whatever be its origin, it is hereditary in the constitution, descending "from parents to children unto the third and fourth generation; indeed, it seems to be the rod of Him who says, "I will visit the iniquities of the fathers upon their children."

Its effects commence by deposition from the blood of corrupt or ulcerous matter, which, in the lungs, liver, and internal organs, is termed tubercles; in the glands, swellings; and on the surface eruptions or sores. This foul corruption which genders in the blood, depresses the energies of life, so that scrofulous constitutions not only suffer from scrofulous complaints, but they have far less power to withstand the attacks of other diseases; consequently vast numbers perish by disorders which, although not scrofulous in their nature, are still rendered fatal by this taint in the system. Most of the consumption which decimates the human family has its origin directly in the scrofulous contamination; and many of the destructive diseases of the liver, kidneys, brain, and, indeed, of all the organs, arise from or are aggravated by the same cause,

One quarter of all our people are scrofulous: their persons are invaded by this lurking inflection and their health is undermined by it. To cleanse it from the system we must renovate the blood by an alterative medicine, and invigorate it by healthy food and exercise. Such a medicine we supply in

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the most effectual remedy which the medical skill of our times can devise for this everywhere prevailing and fatal malady. It is combined from the most active remedials that have been discovered for the expurgation of this foul disorder from the blood, and the rescue of system from its destructive consequences. Hence, it should be employed for the cure of not only Scrofula, but also those other affections which arise from it, such as Eruptive and Skin Diseases, St. Anthony's Fire, Rose, or Erysipelas, Pimples, Pustules, Blotches, Blains and Boils, Tumors, Tetter and Salt Rheum, Scald Head, Ringworm, Rheumatism, Syphilitic and Mercurial Diseases, Dropsy, Dyspepsia, Debility, and, indeed, all Complaints arising from Vitiated or Impure Blood. The popular belief in "impurity of the blood" is founded in truth, for scrofula is a degeneration of the blood. The particular purpose and virtue of this Sarsaparilla is to purify and regenerate this vital fluid, without which sound health is imposible in contaminated constitutions.

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NORTH CAROLINA PLANTER.

A MONTHLY

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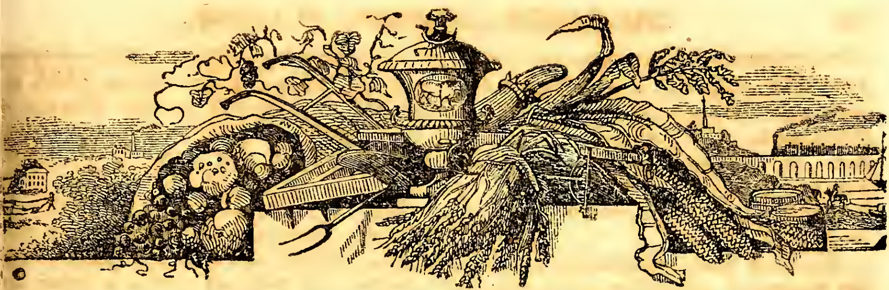

THE NORTH-CAROLINA PLANTER.

Devoted to Agriculture, Horticulture, and the Mechanic Arts

Iœ tibi erunt artes.—VIRGIL. { These are the pursuits to which you should direct your attention.

VOL. 3. RALEIGH, N. C., AUGUST, 1860. NO. 8.

Selections.

Science and Art of Agriculture.

Agriculture is both a science and an art. he knowledge of all the conditions of the fe of vegetables, the origin of their ele- ıents, and the sources of their nourish- ıent, forms its scientific basis.

From this knowledge we derive certain ıles for the exercise of the ART, the rinciples upon which the mechanical ope- ıtions of farming depend, the usefulness r necessity of these for preparing the soil support the growth of plants, and for emoving every obnoxious influence. No xperience, drawn from the exercise of ie art, can be opposed to true scientific rinciples, because the latter should in- ude all the results of practical operations, ıd are in some instances solely derived erefrom. Theory must correspond with :perience, because it is nothing more than e reduction of a series of phenomena to eir last causes.

A field in which we cultivate the same ant for several successive years becomes rren for that plant in a period varying th the nature of the soil: in one field it ll be in three, in another in seven, in a ird in twenty, in a fourth in a hundred years. One field bears wheat, and no peas; another beans and turnips, but no tobacco; a third gives a plentiful crop of turnips, but will not bear clover. What is the reason that a field loses its fertility for one plant, the same which at first flourished there? What is the reason one kind of plant succeeds in a field where another fails?

These questions belong to Science.

What means are necessary to preserve to a field its fertility for one and the same plant?—what to render one field fertile for two, for three, for all plants?

These last questions are put by Art, but they cannot be answered by Art.

If a farmer, without the guidance of just scientific principles, is trying experiments to render a field fertile for plants which it otherwise will not bear, his prospect of success is very small. Thousands of farmers try such experiments in various directions, the result of which is a mass of practical experience forming a method of cultivation which accomplishes the desired end for certain places; but the same method frequently does not succeed—it indeed ceases to be applicable to a second or third place in the immediate neighborhood. How large a capital, and how much power, are wasted in these experiments! Very different, and far more secure, is the path indicated by Science; it exposes us to no danger of failing, but on the contrary, it furnishes us with every guarantee of success. If the cause of failure—of barrenness in the soil for one or two plants—has been discovered, means to remedy it may readily be found.

The most exact observations prove that the method of cultivation must vary with the geognostical condition of the subsoil. In basalt, graywacke, porphyry, sandstone, limestone, &c., are certain elements indispensable to the growth of plants, and the presence of which renders them fertile.—This fully explains the difference in the necessary methods of culture for different places; since it is obvious that the essential elements of the soil must vary with the varieties of composition of the rocks, from the disintegration of which they originated.

Wheat, clover, turnips, for example, each require certain elements from the soil; they will not flourish where the appropriate elements are absent. Science teaches us what elements are essential to every species of plants by an analysis of their ashes. If therefore a soil is found wanting in any of those elements, we discover at once the cause of its barrenness, and its removal may be readily accomplished.

The empiric attributes all his success to the mechanical operations of agriculture; he experiences and recognizes their value, without inquiring what are the causes of their utility, their mode of action; and yet this scientific knowledge is of the highest importance for regulating the application of power and the expenditure of capital—for insuring its economical expenditure and the preventive of waste.—Can it be imagined that the mere passing of the ploughshare or the harrow through the soil—the mere contact of the iron—cain impart fertility miraculously? Nobody, perhaps, seriously entertains such an opinion. Nevertheless, the *modus operandi* of these mechanical operations is by no means generally understood. The fact is quite certain, that careful ploughing exerts the most favorable influence; the surface is thus mechanically divided, changed, increased, and renovated; but the ploughing is only auxiliary to the end sought.

In the effects of time, in what in Agriculture were technically called fallows—the repose of the fields—we recognise by science certain chemical actions, which are continually exercised by the elements of the atmosphere upon the whole surface of our globe. By the action of its oxygen and its carbonic acid, aided by water, rain changes of temperature, &c., certain elementary constituents of rocks, or of their ruins, which form the soil capable of cultivation, are rendered soluble in water, and consequently becomes separable from all their insoluble parts.

These chemical actions, poetically denominated the "tooth of time," destroy all the works of man, and gradually reduce the hardest rocks to the conditions of dust. By their influence the necessary elements of the soil become fitted for assimilation by plants; and it is precisely the end which is obtained by the mechanical operations of farming. They accelerate the decomposition of the soil, in order to provide a new generation of plants with the necessary elements in a condition favorable to their assimilation. It is obvious that the rapidity of the decomposition of a solid body must increase with the extension of its surface; the more points of contact we offer in a given time to the external chemical agent, the more rapid will be its action.

The chemist, in order to prepare a mineral for analysis, to decompose it, or to increase the solubility of its elements, proceeds in the same way as the farmer deals with his fields—he spares no labor in order to reduce it to the finest powder; he separates the impalpable from the coarser parts by washing and repeats his mechanical bruising and trituration, being assured his whole process will fail if he is inattentive to this essential and preliminary part of it.

The influence which the increase of surface exercises upon the disintegration of rocks, and upon the chemical action of air and moisture, is strikingly illustrated upon a large scale in the operations pursued in the gold mines of Yaquil, in Chili. These are described in a very interesting manner by Darwin. The rock containing the gold ore is pounded by mills into the finest powder; that is subjected to washing, which separates the ligher particles from the metallic; the gold sinks to the bottom, while a stream of water carries away the lighter earthly parts into ponds, where it subsides to the bottom as mud. When this deposite has gradually filled up the pond, this mud is taken out and piled in heaps, and left exposed to the action of the atmosphere and moisture. The washing completely removes all the soluble parts of the disintegrated rock; the insoluble part, moreover, cannot undergo any further change while it is covered with water, and so excluded from the influence of the atmosphere at the bottom of the pond. But being exposed at once to the air and moisture, a powerful chemical action takes place in the whole mass, which becomes indicated by an efflorescence of salts covering the whole surface of heaps in considerable quantity. After being exposed for two or three years, the mud is again subjected to the same process of washing, and a considerable quantity of gold is obtained, this having been separated by the chemical process of decomposition in the mass.—The exposure and washing of the same mud is repeated six or seven times, and at every washing it furnishes a new quantity of gold, although its amount diminishes every time.

Precisely similar is the chemical action which takes place in the soil of our fields; and we accelerate and increase it by the mechanical operations of agriculture. By these we sever and extend the surface, and endeavor to make every atom of the soil accessible to the action of the carbonic acid and oxygen of the atmosphere. We thus produce a stock of soluble mineral substances, which serve as nourishment to a new generation of plants, and which are indispensable to their growth and prosperity.

The Mineral Manure Theory.

New Haven, Connecticut,
October 24, 1851.

Eds. Cultivator:—The subject which I have placed at the head of this letter is not one which can be fully discussed in a single page of your journal; and yet it is one of so much importance, that I desire to make a few explanations and statements regarding the shape which it has now assumed among scientific men. When I mention the "mineral manure theory," I speak of that view of manures which ascribes all, or nearly all, of their efficacy to their mineral constituents. The principal supporter, and, indeed, the originator, of the theory, is Professor Liebig. This distinguished chemist, distinguished no less by his clear and lucid style than by his high scientific reputation, was for a time devoted to the "ammonia theory," excluding those mineral manures to which he now attaches so much importance. A few years since, however, he saw cause to change his ground, and has since held that, if we furnish mineral manures in abundance, plants will, without doubt, always obtain their ammonia, or rather nitrogen, from the atmosphere of the soil.

In pursuance of this idea, he went so far as to compound, after a careful study of ash analyses, specific mineral manures for wheat, rye, oats, turnips, &c., which were to take effect upon all soils in a proper physical condition. The failure of these specific manures, which were patented in England, was, as many of your readers doubtless are aware, very decisive. I had supposed the subject rather at rest, but find that, in the last edition of Prof. Liebig's "Letters on Chemistry," published so late as the commencement of the present year, he reiterates his former views on this subject in a most decisive manner, and prophesies that our future agriculture will depend upon them, however much we may distrust and disbelieve them now.—I have also had occasion to observe quite recently that some gentlemen of highstanding among our scientific men follow Liebig in this as well as other theories. For these reasons I have thought it best to express my own opinions on this contested point, in order that our farmers may be aware that all chemists do not hold to views which militate almost directly against the ordinary results of practice.

My belief was, that when Professor Liebig advocated the "ammonia theory," he was nearer right than he is now, when he only admits the necessity of mineral manure; not that he was right then, but that better results would, in most cases, be obtained by the farmer in the use of ammoniacal or nitrogenious manures alone than by the use of mineral manures alone. We find land in all parts of the country where strictly mineral applications, such as lime, plaster, marl, &c., fail to produce any marked effect, but if upon any of our fields we apply guano, or sulphate, or carbonate of ammonia, the character of the vegetation is at once changed, its color alters, its luxuriance and vigor increase, and in a majority of cases the product is augmented. Every farmer who has observed matters intelligently knows that the above statements are correct; indeed, they have been so far applied in practice, that the quantity of ammonia which any manure contains is taken as the highest standard of its value. A guano, for instance, with the usual per centage of ammonia, even though this deficiency is replaced by the most valuable possible mineral constituents. I must not be understood to say that mineral manures are not valuable; on the contrary, I have the highest opinion of them, and recommend their application in almost all cases where my advice is asked. The mineral constituents of the plant are no less indispensable than its organic part, and if one or two of them are absent from the soil, the plant will not flourish. There are many instances of these special deficiences, which special mineral manures alone will supply, and there are certain mineral substances which have been found specially valuable. The most valuable of all these is phosphoric acid. Now, the *phosphates*—that is, the compounds of this acid—are not more necessary to the plant than are the *alkalies*, but the supply is far more apt to be scanty; and this—not its intrinsic importance to the plant—is the cause of its higher value to the farmer.—The same principle applies when we say that nitrogenous manures, of which ammonia is the most common form, are more valuable than others known in agriculture. They are volatile, easily decomposable, and very soluble; for all these reasons, they are extremely apt to disappear most rapidly.—These manures, then, are worth more to the farmers than any other, because they are most likely to be needed, and because their scarcity renders it somewhat difficult to obtain a good supply.

I make these statements fearlessly and confidently, although against so high an authority as Liebig. I should not presume to differ from him on mere theoretical grounds, but that I am here sustained by almost uniform practical results. It must be acknowledged that we have occasional instances reported of plants grown upon soils nearly or quite destitute of vegetable matter; but in most of these that have fallen under my observation, the fact of the entire absence of vegetable, and particularly of nitrogenous matter, has not been sufficiently established. The information that they give is neither entirely definite, nor well enough made out, by continuous and careful experiments, to be set off against an array of facts brought forward in favor of the opposite view. Single experiments, for a single year, must always be looked upon with distrust until amply verified; and it is by mainly trusting to such, so far as we are informed, that the exclusive mineral theory has been built up. The labaratory alone is pretty sure to go wrong when it attempts to prescribe rules for practice. The chemist must go into the field and study actual experience if he would serve the farmer effectually. It has been my intention to experiment somewhat largely upon this particular subject; but in the last number of the Journal of the Royal Agricultural Society of England is a paper of Messrs. Lawes and Gilbert, that almost precludes the necessity of doing anything more. These gentlemen have been experimenting on a large scale for the last ten years, and their results are clearly and admirably set forth. They took a field at the close of a four years' rotation, when the manures added at the commencement of the course were exhausted. On this ground they have cultivated wheat for ten years under various conditions. One plot remained unmanured, and the produce of this served as a standard and a starting point for comparison during the whole period. Thus, if its yield in 1845 was seventeen bushels per acre, the improvement over this in an adjoining plot, otherwise the same, was set down to the advantage of whatever manure had been employed. Such a system of cropping, continued for so long a time, obviously affords results that are worthy of much confidence. The first year's comparative practice was made with various approved mineral manures alone. It was found that, even by the addition of large quantities of these, the increase of product over the unmanured plot was but trifling. In the next year the same character of mineral manures were employed, but with the addition in several cases of ammoniacal or nitrogenous substances. In all of these the effect was quite marked, the yield increasing to ten, twelve, and fourteen bushels, above the unmanured plot. This, in short, was the character of all the results; sometimes mmoniacal manures alone were added, nd then the increase was several times ore than by mineral manures alone. One xperiment was striking: four hundred eight per acre of Liebig's special mineral anure, for wheat, was applied to a plot, nd produced an increase of but two or ree bushels upon this same plot in the ext year. A purely ammoniacal manure ave an increase of ten or twelve bushels. o make the experiment still more conclu- ve, no manure was added to this plot for e next crop, and the yield then fell again most to the original standard.

These trials seem to me perfectly con- usive in this matter, so far as wheat is ncerned; they prove that ammonical ma- ures increase its growth far more than ineral manures, where both are already esent in moderate supply, and that the ldition of any amount of the latter will little good unless the former be also esent. These views are still further s:ained by a very able paper in one of e late French scientific journals. The periments in this case were made upon ts, and were between forty and fifty in imber. They commenced by growing em out in sand, first deprived of every ing soluble by acid, and then burned to aw off all vegetable matter. In this, as ight have been expected, no perfect plants re produced. One mineral substance er another was added, until at last it was und that with a certain series of them, e plant flourished better than with any hers. It, however, was still far from xuriant, or from yielding a fair amount grain. It was not until some manures ntaining nitrogen had also been added at entirely healthy, fertile, and strong nts were obtained. These experiments pear to have been very carefully conduct- , and furnish important confirmation to ose of Messrs. Lawes and Gilbert.

There are other questions involved in ese experiments, which for want of space nnot be discussed here. The main point I think, fully established. The farmer ty supply special deficiencies by special neral manures, and should aim to keep the supply of mineral substances in the l; but he cannot render it fertile, and ntinue it so, with them alone; he must o supply nitrogen in some form, and l find it in a majority of cases the most portant and efficacious of all fertilizers. In despite of theoretical views to the contrary, he will find that, in practice, he can best afford to give a high price for those manures—that especially, rich in ammonia or some other compound of nitrogen.

Yours, very truly,
JOHN P. NORTON,
Albany Cultivator.

The Bases of the Science of Agriculture.

The science of Agriculture rests on experience; and nothing else should be required or expected from it but that which appertains to a practical science. The first principles arise from the perceptions of the senses; but if experience wholly and entirely flowed from these perceptions, the development would not be less the offspring of science and the work of the understanding.

From the frequent union and the succession of objects, we conclude that a certain fact is the consequence or result of another; and it is the source of a vast number of errors that we are so much disposed to regard the occurrences which take place as the effects of those by which they were preceded. Unfortunately we have not, as yet, any positive or general indications which will enable us to distinguish between that which is simply the effect of a mere succession of time and that which is produced by another motive power.

A frequent and repeated union alone can authorize us to presume on the connection of two objects, as cause and effect. The oftener this union is repeated, the greater is the probability of this relation being founded on fact. This probability may, at length, become a moral certainty; but this certainty ceases entirely if one of these objects ever appear without the other, for then we should more or less presume that the one is not the only cause of that which is regarded as the effect.

The greater number of facts, however, when we view them in their whole extent, will be found to be the result, not of one sole cause, but of the union of several. If we have nine of these present and the tenth is wanting, the effect will not be produced, and even the contrary often takes place—for instance:

In order to produce a perfect ear of wheat, we require:

1. A sound grain of wheat, with the germ entire.

2. Some soil, carefully plowed and prepared.

3. A proper degree of moisture, neither too much nor too little.

4. A proper degree of heat.

All this is generally known, but it is also known that we require,

5. Atmospheric air; for no germ will vegetate in a vacuum.

6. A proper proportion of oxygen; for in air which contains no oxygen the germ will never grow.

7. Carbon; for without it a plant will only flower, and cannot produce any grain.

8. Light; without which the plant exhausts itself, is always weak, and perishes before it arrives at maturity.

All these different substances or agents, and perhaps many others, must be united in order to produce this effect and must all unite in their just proportions in order to bring it to perfection. Should the effect not be produced, it arises from some defect in one or other of these causes.

We can experiment either by means of simple observation—by examining the subjects and agents placed in relation with each other, and by considering their reciprocal action and observing its results; or by means of *trials*, or experiments—by placing some well-known plant in certain situations determined with precision, observing their reciprocal action, and preventing, as much as we possibly can, any foreign or unknown body from influencing the results of our experiment.

A trial is a question addressed to nature: when such a question is properly put, Nature will necessarily reply either yes or no.

It is only within the last century that the art of making experiments has been clearly apprehended. It is on this art that the principal power of man over the material world is founded; and that power will become more extended in proportion as he brings this art nearer to perfection and carries it into full practice.

It is not often that, in an isolated situation, under the very hand of the naturalist, or in the laboratory of the chemist, any complete and satisfactory experiments can take place. They are beyond the active sphere of the agriculturist, properly so called. Nevertheless, the manner of recognising them, of investigating them, and disposing of them, is, as we shall see, o the greatest importance in the science o Agriculture.

There is a particular kind of agricultura experiments which have arrived almost a perfection, and which can be regulate with a degree of precision equal to tha which is attained in the other practica sciences: these are comparative trials i the open air.

It is true that experiments of this kin are not easily made: but, nevertheless, the are in the power of every reflecting agriculturist. Whoever has accomplished on experiment, whatever may be the peculiarity of the circumstances under which i was made, and has given a faithful accoun of it, has well contributed to the advancement of science, and consequently to usefu practice, and has entitled himself to th gratitude of his contemporaries and o posterity. It would surpass the power o any single individual to accomplish an considerable number of these experiments and could not be expected from him. I is the duty of the Government to plac some well-educated men in a position t employ their time and talents in investigating the secrets of nature for the advancement of Agriculture and the general goo

Agricultural societies, which are instituted for the advancement of science, shoul especially engage in the preparation of suc experiments, and divide the execution o them among the several members.*

The number of these special experiment being as yet far too small, we are compelled to draw on the large collection of individual observations, imperfect as the are, to adopt them as the principles of ou science.

Science would have made much greate progress if the false shame with which agriculturists conceal every unsuccessful experiment, and the exaggerated manner i which they often relate all those in whic they have succeeded, had not retarded i progress.†

Natural history, which of late years h

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* This plan is adopted by the Royal Society of En land.

† The author very justly animadverts on the "e aggerated manner" in which practical men have pu lished the results of their experience, which ha never been realized in continued practice even by t publishers themselves, and have not failed to thro doubts on all similar propositions. Moderation a caution cannot be too much recommended in such c ses.

been brought to such perfection, renders very valuable assistance in laying the fundamental principles of our science; it affords a clue by which we may extricate ourselves from a labyrinth of imperfect experiments, and serves as a touchstone by which to judge of their truth and their value. Nature acts everywhere on uniform and eternal rules; and the agriculturist can only employ those means which she places at his disposal. It is this disposition which, with reference to Agriculture, enables us to derive a physical and chemical knowledge of the precise rules by which it is governed, or at least to obtain indications of the course which we must pursue in all our researches. If natural history only taught us to understand the nature of soil, the varieties of its composition, and of what substance it is composed, that alone would have been sufficient to throw some valuable light on the numerous differences which are observed in the results of certain operations. These sciences have long exercised an influence on Agriculture. Latterly, chemistry in particular has been employed to enrich the science of Agriculture; and very great benefit has been derived from this union. We are now enabled to discard several extensively received prejudices, through our more extended observations on the surface of the country, and in rural economy, and to establish the truth of several facts which heretofore were merely probable. It is on this account that scientific instruction in Agriculture should always be based on sound notions of physics and chemistry, and that we should endeavor, by means of these sciences, to penetrate as far as possible into the principles and foundation of things; for, the want of success in our researches, and the reason that we do not arrive at more numerous and more sound conclusions, is to be attributed to our imperfect knowledge of the phenomena of nature.

The agriculturist is principally employed n the reproduction, the vegetation, and in maturing and perfecting the growth of plants A knowledge of the organization and nature of vegetables, called *physiology* is indispensable to the study of Agriculture; and also a knowledge of their distinctive characteristics, their natural and scientific classification and their nomenclature, or, in other words, *botany*.

And as it is a part of the busines of the agriculturist to multiply animals and animal substances, some knowledge of the animal economy, and of the diseases to which it is subject, would be greatly conducive to his success.

No science can be said to be complete without the aid of mathematics, properly so called. But Agriculture requires the application of several branches of the mathematics: it demands a knowledge of arithmetic in its most extensive meaning; a calculation for the detailed accounts, and book-keeping.

It is, then, evident that Agriculture ought to borrow from every science the principles which she employs as the foundation of her own; and although the sciences do not form an indispensable part of the farmer's education, he ought, nevertheless, to have a general knowledge of them.

A Sketch of Systematic Agriculture.

AGRICULTURE is the art of deriving from the earth the most valuable organic productions. He who exercises this art seeks to obtain profit by causing to grow, and by using, its animal and vegetable productions. The more considerable the gain derived, therefore, the better is the object accomplished. The most perfect Agriculture is, evidently, that which produces, by the application of labor, the largest and the most permanent profit in comparison with the means employed. Systematic Agriculture ought, then, to teach us all the circumstances by means of which we may derive the most considerable profit by the practice of the art. Now there are three methods of teaching or of learning the practice of Agriculture.

1. As an occupation, by the manual exercise of it. 2. As an art. 3. As a science.

The skillful practice of Agriculture, as an occupation, is limited to the imitation of certain operations, and the observation of events and circumstances. It is nothing more, when thus pursued, than a simple mechanical art: for the practical farmer can only imitate and repeat the ordinary operations of Agriculture, occasionally modified by times and circumstances; and often, perhaps, without considering or even knowing the motives by which he is governed.

The art of Agriculture is the realization of some ideal object. He who practices it has received from others, without considering the reasons on which it is founded, the idea or rule by which he proceeds. The skillful practice of an art consists, therefore, in the adoption of new ideas, in the study of new rules, and in judging the fitness of their being carried into practice.

The science of Agriculture does not lay down any positive rules, but it develops the motives by which the best possible method of proceeding may be discovered and successfully pursued. In fact, the art executes some law given and recived, but it is from science that law emanates.

Science alone can be of universal utility, embrace the whole extent of a subject, and enable us to devise the best execution of it under every possible circumstance — Every positive direction is applicable only to some determinate case, and each case requires a special rule which science alone can supply. That system of Agriculture can only be called the most perfect which is the most reasonable—for these are synonymous terms.

The manual exercise and study of the art can never be useless to the agriculturist who wishes to elevate it to the rank of a science, and to the mental consideration of which it is deserving. It will be advantageous to him to have experienced the labor and the energy which are necessary, in order that he may judge of the mechanical execution of the various portions of it.

A purely practical agriculturist is compelled to follow the rule which has been laid down for him, although it may not be wholly applicable to the peculiar case which presents itself. He cannot depart from it without adopting some other rule, which may, perhaps, deviate entirely from the first. This is the reason that so many agriculturists who have practiced with success in other countries, and under other circumstances, on being removed elsewhere, have committed very deplorable blunders.

Thus, the man who has not studied the science of Agriculture can make little use of books, or even the best of them. He knows not how to arrange the new ideas which they unfold, and he cannot follow them in their fullest extent. All that he dares to do is to read those books which have the closest relation with the circumstances in which he is placed.

Trenching and Subsoiling.

Gardening for the plantation as well a Market Gardening deserves more attentio than has generally been given them in th South, hence, we give the following articl which was read before the progressiv Gardener Society of Philadelphia, by Col H. Miller, and hope it will amply pay fo attentive perusal:

This is a matter which has been muc discussed and has led to the expression of variety of opinions. Some have though a general upheaving and reversion of th soil absolutely necessary. Others woul content themselves with digging and dee plowing, as the case may be. Both thes opinions will hold good in their prope places, or in relation to different localities hence the various and conflicting opinion promulgated from time to time for th general benefit of those interested in th cultivation of the soil.

The subject of trenching and subsoilin has been recently freely disscussed, showing the great importance attached to thi mode of preparing the soil. At the agricultural lectures at New Haven, las month, and also at the Fruit Growers Convention, at Lancaster, Pa., an animate discussion on the subject took place, affording much desired information. Mr Barry of Rochester believes the preparation of the soil for nursery and orchar purposes, by plowing and subsoiling to th depth of eighteen inches, amply sufficient in good soil, without trenching and turning up the subsoil three feet deep, as recommended by some. Mr. Allen and others followed in the same track, declarin that the deeper the roots of fruit tree penetrate the subsoil beyond a depth o eighteen inches the more injury they sustain. Dr. Eshleman (as reported) remarked that by deep trenching the moistur was afforded a chance to rise to the surface by capillary attraction, in the very dryes time, and was of opinion that all soils woul be benefitted thereby. Mr. Harvey state he had ground trenched two feet, for potatoes, at a cost of sixty dollars per acre and found it paid well. Some other gentlemen stated the cost of trenching b hand to be sixty-five dollars per acre,— difference of forty dollars; a considerabl item against trenching.

Now, as regards the preparation o

ground for potatoes, or any other field crop, my experience has led me to the conclusion hat subsoiling to the depth of eighteen nches is quite sufficient, and when the lifference of cost is taken into considera- ion, I am inclined to doubt the superior enefit of fuch deep trenching, firmly be- ieving that as good a crop of potatoes, or ny ordinary field or grain crop, can be ecured from ground subsoiled to the lepth of twelve to eighteen inches, as from depth of two or three feet, all other hings being equal.

The principal advantage of trenching nd subsoiling, is their effect in accalera- ing the growth of young trees, vegetables, ereals, etc. This is especially manifest in he majority of garden crops where a rapid evelopment is required to produce. For ees, deep tillage is all important, especial- in their earlier stages, facilitating their rowth—a matter of no small importance gentlemen wishing to see the result of eir labors. Eighteen to twenty inches sufficient, if properly done at the time f planting. I will remark, also, that I nsider the system of cultivating in or- ards with the plow, after the first season, be highly injurious; prefering to sow chard-grass or clover, supplying manure the surface in the summer around the ees, as soon as the grass crop is taken f, and cultivating around the trees with a rk in spring.

Trenching is a mode of preparing the il for various crops by digging a trench, d filling it up again. In filling the rather succession of trenches, the sub- ratum should be allowed to remain at e bottom, or rather should not be taken it, but well loosened to the depth re- ired, as it is a well known fact that seeds ill not vegetate so well or so rapidly, hen planted in newly trenched ground here the substratum has been thrown on e surface. This I have verified by ac- al experiments. There are few soils that n not be improved by artificial means, it there are some subsoils that cannot be fficiently aerated and warmed by any ount of subsoiling or drainage: and ere are sometimes good soils where trench- g or subsoiling would be a positive injury thout a thorough system of drainage.— ch intractable soils are often found on t level grounds, by the side of lakes or eams. In these the soil may be excellent, while the subsoil is incurably damp and cold. There the late spring and early autumn frost are injurious, to an extent greater than on more elevated land. The crops of early vegetables are consequently retarded, and the bloom of fruit trees often destroyed. In such soils deep trenching would be anything but beneficial, unless as I said before, a thorough system of under drainage had been employed. In such localities, deep tillage would promote the absorbing powers of the soil, and consequently attract the late spring and early autumn frosts to an injurious extent.—Vegetables would be coarse and rank, and cereals more productive of straw than grain.

In vegetable gardens and orchards the drainage and tillage should, if possible be more complete than is generally employed for agricultural purposes. To most horticultural operations, a complete well aired and warmed soil is essential, and this can only be accomplished by thorough drainage. Cold, damp ground yields only inferior vegetables and unproductive trees, a state of matters to be deplored, and not unfrequently seen in gardens of considerable pretensions. Soils that absorb the most moisture are the most fertile. Sir Humphrey Davy remarks: "I have compared the absorbent powers of many soils." Now, as we are given to understand, by most writers on the subject, the earths are not the food of plants but they constitute the stomach, analogous to the stomach of animals, in which vegetable and animal matter is received and digested, and, with the aid of leaves or lungs, transformed to animal substance. The best soil for this digestive process is that which comprehends the greatest absorbent qualities, and this indispensible absorbent power is attained by a thorough system of draining, trenching, and subsoiling.

RED RUST IN COTTON.—We have just been put in possession of an item of great interest to cotton growers. Those who have tried it say that common salt, about three pecks to the acre, sown broadcast, will cure cotton of this disease after it has made its appearance, and restores it to its original healthfulness and color. We should think, too, that the same remedy would be likely to *prevent* the disease where it is apt to make its appearance.—*Argus.*

Advantages of Under-Draining.

The advantages of under-draining are many and important.

1. It entirely prevents drought.
2. It furnishes an increased supply of atmospheric fertilizers.
3. It warms the lower portions of the soil.
4. It hastens the decomposition of roots and other organic matter.
5. It accelerates the disintegration of the mineral matters in the soil.
6. It causes a more even distribution of nutritious matters among those parts of soil traversed by roots.
7. It improves the mechanical texture of the soil.
8. It causes the excrementitious matter of plants to be carried out of the reach of their roots.
9. It prevents grasses from running out.
10. It enables us to deepen the surface soil—by removing the excess of water.
11. It renders soils earlier in the spring.
12. It prevents the throwing out of grain in winter.
13. It allows us to work sooner after rains.
14. It keeps off the effects of cold weather longer in the fall.
15. It prevents the formation of acetic and other organic acids, which induce the growth of sorrel and similar weeds.
16. It hastens the decay of vegetable matter, and the finer comminution of the earthly parts of the soil.
17. It prevents, in a great measure, the evaporation of water, and the consequent obstruction of heat from the soil.
18. It admits fresh quantities of water from rains, etc., which are always more or less imbued with the fertilizing gases of the atmosphere, to be deposited among the absorbent parts of soil, and given up to the necessities of plants.
19. It prevents the formation of so hard a crust on the surface of soil as is customary on heavy lands.

1. Under-draining prevents drought, because it gives a better circulation of air in the soil; (it does so by making it more open.) There is always the same amount of water in and about the surface of the earth. In winter, there is more in the soil than in summer, while in summer, that which has been dried out of the soil exists in the atmosphere in the form of a vap
It is held in the vapory form by h
which acts as braces to keep it distend
When vapor comes in contact with s
stances sufficiently colder than itself
gives up its heat—thus losing its braces
contracts, and becomes liquid water.

This may be observed in hundreds
common operations.

It is well known that a cold pitche
summer robs the atmosphere of its h
and causes it be deposited on its own
face. It looks as though the pitcher w
sweating, but the water all comes from
atmosphere, not, of course, through
sides of the pitcher.

If we breathe on a knife blade, it c
denses in the same manner the moistur
the breath, and becomes covered wit
film of water.

Stone houses are damp in summer,
cause the inner surfaces of the walls, be
cooler than the atmosphere, cause its m
ture to be deposited in the manner
scribed. By leaving a space, however,
tween the walls and the plaster, this m
ture is prevented from being troubleso

Nearly every night in the summer s
on, the cold earth receives moisture f
the atmosphere in the form of dew.

A cabbage, which at night is very c
condenses water to the amount of a gil
more.

The same operation takes place in
soil. When the air is allowed to circu
among its lower and cooler particles, t
receive moisture from the same proce
condensation. Therefore, when, by
aid of under-drains, the lower soil beco
sufficiently open to admit of a circula
of air, the deposit of atmospheric mois
will keep the soil supplied with water
point easily accessible to the root
plants.

If we wish to satisfy ourselves that
is practically correct, we have only to
pare two boxes of finely pulverized
one, five or six inches deep, and the o
fifteen or twenty inches deep, and p
them in the sun at mid-day in summe
The thinner soil will be completely d
while the deeper one, though it may h
been perfectly dry at first, will soon a
mulate a large amount of water on t
particles, which, being lower and
sheltered from the sun's heat than the
ticles of the thin soil, are made cooler.

With an open condition of subsoil, then,
ch as may be secured by under-draining,
entirely overcome drought.

2. Under-draining furnishes an increased
pply of atmospheric fertilizers, because
secures a change of air in the soil.—
is change is produced whenever the soil
comes filled with water, and then dried;
en the air above the earth is in rapid
tion, and when the comparative tem-
rature of the upper and lower soils
anges. It causes new quantities of the
monia and carbonic acid which it con-
ns to be presented to the absorbent parts
the soil.

3. Under-draining *warms the lower parts*
the soil, because the deposit of moisture
necessarily accompanied by an abstrac-
n of heat from the atmospheric vapor,
d because heat is withdrawn from the
ole amount of air circulating through
cooler soil.

When rain falls on the parched surface
l, it robs it of a portion of its heat,
ich is carried down to equalize the tem-
rature for the whole depth. The heat
the rain water itself is given up to the
l, leaving the water from one to ten de-
ees cooler, when it passes out of the
ins, than when received by the earth.

There is always a current of air passing
m the lower to the upper end of a well
structed drain; and the air is always
ler in warm weather, when it issues
m, than when it enters the drain. Its
t heat is imparted to the soil.

This heating of the lower soil renders it
re favorable to vegetation, partially by
anding the spongioles at the end of the
ts, thus enabling them to absorb larger
antities of nutritious matters.

4. Under-draining *hastens the decompo-*
on of roots and other organic matters in
soil, by admitting increased quantities
air, thus supplying oxygen, which is as
ential in decay as it is in combustion.—
also allows the resultant gases of de-
nposition to pass away, leaving the air
und the decaying substances in a con-
ion to continue the process.

This organic decay, besides its other
efits, produces an amount of heat per-
tly perceptible to the smaller roots of
nts, though not so to us.

5. Draining *accelerates the disintegra-*
n of the mineral matters in the soil, by
mitting water and oxygen to keep up
the process. This disintegration is necessary to fertility, because the roots of plants can feed only on matters dissolved from *surfaces;* and the more finely we pulverize the soil, the more surface we expose. For instance, the interior of a stone can furnish no food for plants; while, if it were finely crushed, it might make a fertile soil.

Anything, tending to open the soil to exposure, facilitates the disintegration of its particles, and thereby increases its fertility.

6. Draining *causes a more even distribution of nutritious matters, among those parts of soil traversed by roots*, because it increases the ease with which water travels around, descending by its own weight, moving sideways by a desire to find its level, or carried upward by attraction to supply the evaporation at the surface. By this continued motion of the water, soluble matter of one part of the soil may be carried to some other part; and another constituent from this position may be carried back to the former. Thus the food of vegetables is continually circulating around among their roots, ready for absorption at any point where it is needed, while the more open character of the soil enables roots to occupy larger portions, making a more even drain on the whole, and preventing the undue impoverishment of any part.

7. Under-drains *improve the mechanical texture of the soil;* because, by the decomposition of its parts, it is rendered of a character to be more easily worked; while smooth round particles, which have a tendency to pack, are roughened by the oxidation of their surfaces, and moves less easily among each other.

8. Drains *cause the excrementitious matter of the plants to be carried out of the reach of their roots.* Nearly all plants return to the soil those parts of their food, which are adapted to their necessities, and usually in a form that is poisonous to plants of the same kind. In an open soil, this matter may be carried by rains to a point where roots cannot reach it, and where it may undergo such changes as will fit it to be again taken up.

9. By under-draining, *grasses are prevented from running out*, partly by preventing the accumulation of the poisonous excrementitious matter, and partly because

these grasses usually consist of *tillering* plants.

These plants continually reproduce themselves in sprouts from the upper parts of their roots. These sprouts become independent plants, and continue to tiller (thus keeping the land supplied with a full growth,) until the roots of the *stools* (or clumps of tillers,) come in contact with an uncongenial part of the soil, when the tillering ceases; the stools become extinct on the death of their plants, and the grasses run out.

The open and healthy condition of soil produced by draining prevents the tillering from being stopped, and thus keeps up a full growth of grass until the nutriment of the soil is exhausted.

10. Draining *enables us to deepen the surface-soil*, because the admission of air and the decay of roots render the condition of the subsoil such that it may be brought up and mixed with the surface-soil, without injuring *its quality*.

The second class of advantages of under-draining, arising in the removal of the excess of water in the soil, are quite as important as those just described.

11. *Soils are, thereby, rendered earlier in spring*, because the water, which rendered them cold, heavy, and untillable, is earlier removed, leaving them earlier in a growing condition.

12. *The throwing out of grain in winter* is prevented, because the water falling on the earth is immediately removed instead of remaining to throw up the soil by freezing,as it always does from the upright position taken by the particles of ice.

13. *We are enabled to work sooner after rains*, because the water descends, and is immediately removed instead of lying to be taken off by the slow process of evaporation, and sinking through a heavy soil.

14. *The effects of cold weather are kept off longer in the fall*, because the excess of water is removed, which would produce an unfertile condition on the first appearance of cold weather.

The drains also, from causes already named, keep the soil warmer than before being drained, thus actually lengthening the season, by making the soil warm enough for vegetable growth earlier in spring, and later in autumn.

15. *Lands are prevented from becoming sour by the formation of acetic acid*, etc., because these acids are produced in th
soil only when the decomposition of o
ganic matter is arrested by the *antisept*
(preserving) powers of water. If the w
ter is removed, the decomposition of th
organic assumes a healthy form, while th
acids already produced are neutralized b
atmospheric influences, and the soil is re
tored from sorrel to a condition in whic
it is fitted for the growth of more valuab
plants.

16. The *decay roots*, etc., is allowed
proceed, because the preservative influen
of too much water is removed. Woo
leaves, or other vegetable matter kept co
tinually under water, will last for ages
while, if exposed to the action of th
weather, as in under-drained soils, the
soon decay.

The presence of too much water, by e
cluding the oxygen of the air, prevents th
comminution of matters necessary to fe
tility.

17. *The evaporation of water, and t*
consequent abstraction of heat from t
soil, is in a great measure prevented b
draining the water out at the bottom
the soil, instead of leaving it to be dried
from the surface.

When water assumes the gaseous (
vapory) form, it takes up 1723 times
much heat as it contained while a liqui
A large part of this heat is derived fro
surrounding substances. When water
sprinkled on the floor, it cools the room
because, as it becomes a vapor, it tak
heat from the room. The reason why v
por does not feel hotter than liquid wat
is, that, while it contains 1723 times
much heat, it is 1723 as large. Hence,
cubic inch of vapor, into which we pla
the bulb of a thermometer, contains
more heat than a cubic inch of water.-
The principle is the same in other cases.-
A sponge containing a table-spoonful
water is just as *wet* as one twice as lar
and containing two spoonsful.

If a wet cloth be placed on the hea
and the evaporation of its water assist
by fanning, the head becomes cooler—
portion of its heat being taken to susta
the vapory condition of the water.

The same principle holds true with th
soil. When the evaporation of water
rapidly going on, by the assistance of th
sun, wind, etc., a large quantity of heat
abstracted, and the soil becomes cold.

When there is no evaporation taking place, except of water which has been deposited on the lower portions of the soil, and carried to the surface by capillary attraction (as is nearly true on under-drained soils,) the loss of heat is compensated by that taken from the moisture in the atmosphere by the soil, in the above-named manner.

This cooling of the soil by the evaporation of water, is of very great injury to its powers of producing crop, and the fact that under-drains avoid it, is one of the best arguments in favor of their use.—Some idea may, perhaps, be formed of the amount of heat taken from the soil in this way, from the fact that, in midsummer, 25 hogsheads of water may be evaporated from a single acre in twelve hours.

18. When not saturated with water the soil admits the water of rains, etc., which bring with them *fertilizing gases from the atmosphere*, to be deposited among the absorbent parts of soil, and given up to the necessities of the plant. When this rain falls on lands already saturated, it cannot enter the soil, but must run off from the surface, or be removed by evaporation, either of which is injurious. The first, because fertilizing matter is washed away. The second, because the soil is deprived of necessary heat.

19. *The formation of crust on the surface of the soil* is due to the evaporation of water, which is drawn up from below by capillary attraction. It arises from the fact that the water in the soil is saturated with mineral substances, which it leaves at its point of evaporation at the surface.—This soluble matter from below, often forms a very hard crust, which is a complete shield to prevent the admission of air with its ameliorating effects, and should, as far as possible, be avoided. Under-draining is the best means of doing this, as it is the best means of lessening the evaporation.

The foregoing are some of the more important reasons why under-draining is always beneficial. Thorough experiments have amply proved the truth of the theory.

The *kinds of soil benefitted by under-draining* are nearly as unlimited as the kinds of soil in existence. It is a common opinion, among farmers, that the only soils which require draining are those which are at times covered with water, such as swamps and other lands. The fact that land is *too dry*, is as much a reason why it should be drained, as that it is *too wet*, as it overcomes drought as effectually as it removes the injurious effects of too much water.

All soils in which the water of heavy rains does not immediately pass down to a depth of at least *thirty inches*, should be under drained, and the operation, if carried on with judgment, would invariably result in profit.

Of the precise profits of under-draining this is not the place to speak: many of the agricultural papers contain numerous accounts of its success. It may be well to remark here, that many English farmers give it, as their experience, that under-drains pay for themselves every three years, or that they produce a perpetual profit of 33⅓ per cent., or their original cost. This is not the opinion of theorists and book farmers. It is the conviction of practical men, who, from experience, declare that under-drains are beneficial.

The best evidence of the utility of under-draining is the position, with regard to it, which has been taken by the English national government which affords much protection to the agricultural interests of her people—a protection which in this country is unwisely and unjustly withheld.

In England a very large sum from the public treasury has been appropriated as a fund for loans, on under-drains, which is lent to farmers for the purpose of under-draining their estates, the only security given being the increased value of the soil. The time allowed for payments is twenty years, and only five per cent. interest is charged. By the influence of this patronage, the actual wealth of the kingdom is being rapidly increased, while the farmers themselves can raise their farms to any desired state of fertility, without immediate investment.

The best proof that the government has not acted injudiciously in this matter is, that private capitalists are fast employing their money in the same manner, and loans on under-drains are considered a very safe investment.

There is no doubt that we may soon have similar facilities for improving our farms, and when we do, we shall find that it is unnecessary to move West to find good soil. The districts nearer market, where the expense of transportation is much less, may, by the aid of under-drains, and a judicious system of cultivation, be made equally fertile.

One very important, though not strictly agricultural, effect of thorough drainage is its removal of certain local diseases, peculiar to the vicinity in the marshes or low moist soils. The health-reports in several places in England, show that where fever and ague was once common, it has almost entirely disappeared since the general use of under-drains in those localities.

Animal Manures.

We will now take up the second class, the animal manures. These comprise the blood, flesh, hair, horns, bones and excrements of animals. Manures of this class are more powerful by far than the vegetable manures, because they contain so much more nitrogen. I now simply state this fact; the reason why nitrogen is so efficacious, will be given in a subsequent chapter. Blood and flesh are among the most valuable of all; wherever they can be obtained, they should be secured at once, and either buried or made into compost. All of the offal from slaughter-houses is of much value, though in this country it is often entirely wasted.

It is not uncommon, in many districts, to see horses or cattle that die from disease, drawn out to some secluded spot, and there left to decay on the surface. These are known to be some of the most powerful manures that the farmer could obtain; equal to guano, poudrette, or any of the other more costly fertilizers. Every animal that dies should be made into a compost, or buried in pieces at once. The best plan is to separate the flesh, which decomposes readily and produces an immediate effect, and make use of the bones according to some of the methods to be hereafter described.

The hair of animals is an exceedingly rich manure; for this reason woolen rags, and the waste from woolen mills, are both considered valuable in England; they are sold there at from $20 to $40 per, ton, and are eagerly sought after at these prices, as not only very fertilizing, but also very lasting in the soil. All of the hair obtained from the furs of animals is there scrupulously saved, and sold at a high price.—Twenty or thirty bushels per acre produce an excellent effect.

All these parts of the animal leave an ash corresponding with that of plants in the substances which it contains, with the single exception of silica; this does not seem to enter into the composition of the animal. We are then now able to point out distinctions between the inorganic matter in the soil, in the plant, and in the animal. They all contain the same substances, if we omit silica and alumina.

Bones.—There is one important part of the animal yet unnoticed, that is the bones. Their composition is, when dry, earthy matter about 66 lbs. in 100; organic matter that burns away, about 34 lbs.

This earthy matter consists for the most part of phosphate of lime, that is, lime in combination with phosphoric acid; these, as already shown, are two most valuable substances for application to any soil.

The organic part is called *gelatin*, or *glue;* this is boiled out by the glue-makers: it is extremely rich in nitrogen, and is therefore an excellent manure. We thus see, at once, how important a source of nourishment for our land is to be found in bones. They unite, from the above statement, some of the most efficacious and desirable organic and inorganic manures. Both of these parts are fitted to minister powerfully to the growth of the plant.

When the bones are applied whole, the effect is not very marked at first, because they decay slowly in the soil: it is also necessary to put on a large quantity per acre. The best way is to have them crushed to powder, or to fine fragments, in mills. Ten bushels of dust will produce a more immediate and abundant result than 80 or 100 bushels of whole bones, although of course the effect will be sooner over. An advantageous way of using them, is to put on 8 to 10 bushels of dust per acre, and half the usual quantity of farm-yard manure.

Boiled bones, that have been used by the glue-makers, are still quite valuable: they have lost the greater part of their gelatine, but the phosphates remain; and the bones are so softened by the long boiling that they have undergone, as to decompose quickly, and afford an immediate supply of food to plants.

Another most important form of applying bones, is in a state of solution by sulphuric acid (oil of vitriol). This is a cheap substance, costing by the carboy not more than 2½ to 3 cents per lb. To every 100 lbs. of bones, about 50 to 60 of acid are taken; if bone dust is used, from 25 to 45 lbs. of acid is sufficient. The acid must be mixedwith two or three times its bulk of water, because if applied strong it would only burn and blacken the bones without dissolving them.

The bones are placed in a tub, and a portion of the previously diluted acid poured upon them. After standing a day, another portion of acid may be poured on; and finally the last on the third day, if they are not already dissolved. The mass should be often stirred.

Another good way is to place the bones in a heap upon any convenient floor, and pour a portion of the acid upon them.—After standing half a day, the heap should be thoroughly mixed, and a little more acid added; this to be continued so long as necessary. It is a method which I have known to prove very successful.

In either case the bones will ultimately soften and dissolve to a kind of paste; this may be mixed with twenty or thirty times its bulk of water, and applied to the land by means of an ordinary water cart. Used in this way, it produces a wonderful effect upon nearly all crops.

A more convenient method in most cases is to thoroughly mix the pasty mass of dissolved bones with a large quantity of ashes, peat earth, sawdust or charcoal dust. It can then be sown by hand, or dropped from a drill machine. Two or three bushels of these dissolved bones, with half the usual quantity of yard manure, are sufficient for an acre. This is therefore an exceedingly powerful fertilizer. One reason for its remarkable effect is, that the bones are by dissolving brought into a state of such minute division that they are easily and at once available for the plant. A peculiar phosphate of lime is formed, called by chemists a *superphosphate*, which is very soluble; and in addition to this we have the sulphuric acid, of itself an excellent application to most soils.

Bones are useful in nearly every district and are peculiarly adapted to all, or at least to most of those situations where the land, without heavy manuring, no longer bears good wheat, or indian corn, or other grains. In a great majority of cases, where land is run dowh by grain cropping, the use of bones in some of the forms above mentioned, is of all things the most likely to meet the deficiency. It will be remembered that the ash of grain is peculiarly rich in phosphates; consequently, as grain is generally sold off, the phosphates are most readily exhausted; in bones therefore we find just the manure for restoring them, and with little expense. This has been already tried in some parts of the country, and with most encouraging success. I would particularly recommend farmers to experiment with bones dissolved in sulphuric acid. The dissolving of them is a simple business, and can be easily shown on a small scale, by the teacher to his class. He can do it, for instance, in a teacup or tumbler, or on a plate or a flat stone. The cheapness of this manure is a great recommendation. Two bushels of bones would not certainly cost more than $1·00; then say 50 lbs. of acid to dissolve them would cost by the carboy, $1·50, making only $2-50 for a quantity quite sufficient for an acre, with half the usual dressing farm-yard manure. It would be worth almost as much as this, to cart the common manure from the yard, to say nothing of its value. There are few farms on which bones enough might not be collected in the course of a year, to help out in this way the manuring of several acres.

Bones may not only be applied successfully to the ordinary cultivated crops, but also to meadows and pastures. In some of the older dairy districts, a few bushels of bone dust per acre will at once restore worn-out pastures. The reason is, that the milk and cheese, which are in one form or another sold and carried away, contain considerable quantities of phosphates in their ash. These are restored to the land by bones. It is calculated by Prof. Johnston, that a cow giving 20 quarts of milk per day, takes from the soil about 2 lbs. of phosphate of lime or bone earth in each week. There would thus be required three or four lbs. of bones, to make good this loss. If it is not made good in some way, the rich grasses after a time cease to flourish; being succeeded by those which require less phosphate of lime, and therefore do not furnish, when eaten by the cow, so rich or so abundant milk.

All of these uses of bones which have been described, are understood and appreciated in England; so much so, that the bones are all collected with most scrupulous care, and are even imported from every other country where they can be advantageously obtained. It is to be hoped that the great waste of them in this country may soon cease, and they will be eagerly sought after by American farmers.

Characters and Varieties of Manures.

To understand the science of *manures* is the most important branch of practical farming. No baker would be called a good practical baker who kept his flour exposed to the sun and rain. No shoemaker would be called a good practical shoemaker, who used morocco for the soles of his shoes, and heavy leather for the uppers. No carpenter would be called a good practical carpenter, who tried to build a house without nails, or other fastenings. So with the farmer. He cannot be called a good practical farmer if he keeps the materials, from which he is to make plants, in such a condition, that they will have their value destroyed, uses them in the wrong places, or tries to put them together without having every thing present that is necessary. Before he can avoid failures *with certainty*, he must know what manures are composed of, how they are to be preserved, where they are needed, and what kinds are required. True, he may from observation and experience, *guess* at results, but he cannot *know* that he is right until he has learned the facts above named. In this section of our work, we mean to convey some of the information necessary to this branch of *practical farming*.

We shall adopt a classification of the subject somewhat different from that found in most works on manures, but the *facts* are the same. The action of manures is either *mechanical* or *chemical*, or a combination of both. For instance; some kinds of manure improve the mechanical character of the soil, such as those which loosen stiff clay soils, or others which render light sandy soils compact—these are called *mechanical* manures. Some again furnish food for plants—these are called *chemical* manures.

Many mechanical manures produce their effects by means of chemical action. Thus *potash* combines chemically with sand in the soil. In so doing, it roughens the surfaces of the particles of sand, and renders the soil less liable to be compacted by rains. In this manner, it acts as a *mechanical* manure. The compound of sand and potash, as well as the potash alone, may enter into the composition of plants, and hence it is a *chemical* manure. In other words, potash belongs to both classes described above.

There is another class of manures which we shall call *absorbents*. These comprise those substances which have the power of taking up fertilizing matters, and retaining them for the use of plants. For instance, *charcoal* is an absorbent. As was stated in the section on soils, this substance is a retainer of all fertilizing gases and many minerals. Other matters made use of in agriculture have the same effect. These absorbents will be spoken of more fully in their proper places.

ABSORBENTS are those substances which absorb and retain fertilizing matters.

Manures may be divided into three classes, viz.: *organic*, *inorganic*, and *atmospheric*.

ORGANIC manures comprise all *animal* and *vegetable* matters which are used to fertilize the soil, such as dung, muck, etc.

INORGANIC manures are those which are of a purely *mineral* character, such as lime, ashes, etc.

ATMOSPHERIC manures consist of those organic manures which are in the form of gases in the atmosphere, and which are absorbed by rains and carried to the soil. These are of immense importance. The ammonia and carbonic acid in the air are atmospheric manures.

Important to Wheat Growers.

To prevent the depredations of the weevil on wheat, get out your wheat as soon as possible after laying by your corn, for this grub will attack it in the shocks or stacks, if suffered to remain in the field. Tar your barn or granaries outside every summer before you put in your wheat, place buckets or vessels of tar inside; if you put the wheat in hogsheads, boxes or barrels, set a vessel of tar over each. Do this, and we will pay for all the wheat injured by the weevil. This is very important in the preservation of seed wheat.

EDITORIAL.

RALEIGH, AUGUST, 1860.

☞ Subscribers receiving the Planter with a ross mark opposite their address, are thereby no ified that the No. thus marked closes the time or which they have paid, and unless renewed, the aper will be sent no longer. We earnestly re uest all who find the cross mark on this No. to romptly forward the money for the Planter an ther year, and if possible, send another name or a club) along with it.

The cash in advance plan is now adopted by ll the papers of the country, and we believe our bscribers will like it better than the credit sys m; hence, we have adopted it, and must rigidly dhere to it. No one will therefore feel agrieved hen he finds his Planter discontinued, if he neg cts to send on money to renew. *All* will be eated alike. We trust, however, all will like us well, that each will send on his renewal as on as he sees the *cross mark.*

O happy, if he knew his happy state,
The swain, who, free from bus'ness and debate,
Receives his easy food from Nature's hand,
And just returns of cultivated land.—VIRGIL.

Varieties of Indian Corn.

There are five original varieties of corn sed for field planting in the Southern tates, the large white and yellow, the nall white and yellow, and the white Vir nia gourd-seed. The cobs of the two st are thick and long, the grains wider an deep, and owing to their peculiar owth and formation are less productive an the last mentioned variety. The nall white and yellow are less productive an any, but ripen earlier. The ears of e Virginia gourdseed frequently produce om thirty to thirty six rows of very large rrow grains, without any of that fluted pearance between the rows, observable the large white and yellow varieties nich causes them to be less productive proportion to size of the ears. The urdseed opens later than any other, but is by far the most productive. It matures sufficiently early, however, in Eastern Virginia and this State, to prevent any injury from early autumnal frost. This variety is invariably white, unless it has been mixed with the yellow corns. When mixed in this way it is called the yellow gourdseed, and some farmers consider it an original variety. Farmers are so careless in the selection of their seed, that almost every field of corn exhibits traces of every variety of seed used for planting, together with many others never used for this purpose. This variety proceeds from the farina fecundares, a light substance of a mouldy colour, seen on the clothes of those working in the corn, disengaged from the tassels. This substance is diffused throughout the field, and lodges on the silky fibres which project from the ears, but still you will find in fields planted altogether in white corn, every now and then, a few scattering ears of red, blue and purple corn. For this lusus naturæ we shall not undertake to account. We are satisfied however from experience, that such mixtures as are best suited for the purpose of farmers in the southern States, (for we do not mean to meddle with the corns of the Northern States, nor should the people thereof interfere with our negroes) may be introduced. These different varieties of corn when planted together are the same, do not mix minutely like wine and water. So far from it, like mixed breeds of animals, a large portion of the valuable properties of any one of them, or the whole five original corns commonly used for field planting, may be communicated to one plant; while the inferior properties of one, or the whole five, may be nearly grown out or eradicated.

Either the big yellow or white should be mixed with the gourdseed. Their cobs being very long, and the grain so much wider and deeper than those of the littl yellow or white, the mixture with them will be much more productive.

The most successful and interesting demonstrations of the practicability of improving Indian corn, as that made by Thomas N. Baden, Maryland, who by carefully selecting the best seed in his field for a long series of years, having special reference to those stalks which produced the most ears, ultimately obtained a variety which yields 4, 5, 6 and even as high as 8 and 10 ears to the single stalk.

The plan he adopted was this; when the corn was husked, (shucked we term it in N. C.,) he made a re-selection, taking only that which was perfectly sound and fully ripe. In the Spring before shelling the corn, he examined it again, throwing out any that had assumed a bad appearance during the winter. In shelling the corn, he threw aside the grains at both large and small ends. He has carefully followed this mode of selecting seed corn for twenty five or thirty years, and still (if living) continues to do so. At present he does not pretend to lay up any seed without it comes from stalks which bear 4, 5 and 6 ears.

In addition to the number of ears, and of course the great increase of the quantity unshelled, it yields much more than common corn when shelled; 10 bushels of ears will make more than 6 bushels shelled. Ordinary corn will only shell 5 bushels to the barrel.

Mr. Baden plants his corn 5 feet each way, leaving two stalks to the hill, which is equivalent to 2½ feet each way with one stalk to the hill. This makes more hills to the acre than 4 by 4 or 5 by 3, the old Virginia mode of planting. Query? would not 5 by 2½ with one stalk to the hill, which is equivolent to 5 by 5 with two stalks to the hill, do better and yield more? Mr. Baden's variety is white gourd-seed, the stalks of which grow to an extraordinary height, the ears 6 or 8 feet abov the ground, and the tassel twice that ele vation. The grain is excellent, the ea short and considerably under the size c the common varieties of corn further Sout when removed further North it seldo matures perfectly. It does not answe well for highland culture, but flourishe and produces abundance of grain and fod der in the wet flat lands or bottoms of th Southern States. We shall not undertak to enumerate the endless varieties of In dian corn, but have mentioned only such a are planted and cultivated in our cl mate and sold to advantage. We have al ready given in our February and March uum bers ample instructions for preparing the soi planting, cultivating, gathering and hous ing this invaluable grain. The farmers i this State, by adopting the plan of Mr Ba den, in selecting any good variety of thi grain, and saving the ears annually fro those stalks that produce two or more ear might in the course of time obtain an im proved variety that would yield as we and as much to the acre as Mr. Baden's.

For the N. C. Planter.

New Hanover County, and the Crop

Business connected with the farmin interest having called us to this county th early part of this past month, we tak pleasure in giving, as far as we travelle the state of the crops at that time, and w fear they have not improved much sinc The severe drouth then and now prevailin had caused the corn to fire badly, especia ly was this the case where shallow plow ing was the rule. We did see some sma fields of corn which it was really a pleasu to look at; one of these a field of eig acres, at Castle Hayne, the plantation Henry Nutt, Esq. This land is said have been worn out thirty years ago, bu with the persevering energy of Mr. Nut and the able management of his oversee Mr. L. D. Cherry it has not the appea ance of being worn out now. The cor above mentioned, when we saw it, was si weeks old, averaged seven feet in height and so dark a green we may say almost black. This was experimental corn; an immense amount of work in the way of draining has been done here recently, and its good effects can be seen in the crops. Cotton looked well and in bloom; the first open July 5th; a large crop on hand; also a great quantity of potatoes growing. The prevalent opinion among planters in this section is, that cotton is not as good as at this time last year.

July 10th, we inspected closely the plantation of N. N. Nixon Esq., situated on the Sound. Here were three hundred acres in ground peas, the cleanest crop we ever saw any where, no crop of any kind excepted. It was a sight not soon to be forgotten. The whole crop was in bloom. Here, also, drainage has been attended to. We observed several ponds that last year, when filled with water, would swim a horse, now covered with a very luxuriant growth of ground peas. In several instances corn occupied the basins of the ponds; where this was the case it also promised an abundant yield. These ponds were drained thoroughly, in many places the ditches were from sixteen to twenty feet in depth and had to be cut through quick-sand a great portion of the way, which made it both difficult and tedious. The buildings on this plantation were in good order and looked exceedingly pretty, all being white washed. We have rarely seen so delightful a situation for a summer residence.

Cotton in Wayne County, we were told by an old experienced planter, was never so backward at this season, in his recollection. The best cotton we have seen throghout our trip is in Wake county; a very unusual thing we believe, but it is so this year.

W. H. HAMILTON.

* * *

Much has been said of the Eastern Esculapius' labors for the sick; not one half has yet been told of the indomitable perseverance of this singular man. Imbued with the conviction that Scrofula is the parent of disease, he has been years engaged in searching the boundaries of the earth, for its antidote.—With vast labor has he canvassed the products of sea and land, through both continents, until he has discovered both remedials which expurges this human rot and corruption from the system. This new invention we now offer in our colums under the name of Ayer's Sarsaparilla, although its virtues are from substances far more active and effectual than Sarsaparilla. *Mercantile Journal.*

Corn—Diseases of.

A new disease of a peculiar character has made its appearance in the South, in Tennessee, and elsewhere. It is said that when the corn is from three to eighteen inches high, the leaves commence turning yellow, and the corn loses its power to appropriate from the soil its necessary pabulum, and consequently ceases to advance; indeed, the crop becomes worthless. The corn is then said to be "french'd." We are asked to account for this difficulty.

In the absence of any exact knowledge on the subject, we are of course compelled to offer hypotheses in explanation. This difficulty may occur from a variety of causes; first, if the soil be deficient of either soluble phosphates or potash, it is impossible for the early plant to complete its organism, and therefore its future appropriations of inorganic matter will not be such an organism as would be capable of receiving from the atmosphere the food necessary to its completion.

We have before stated that water, to be capable of holding in solution inorganic matter, and of carrying it to the appropriate part of the plant where it forms part of the structure, must be charged with carbonic acid and ammonia to a moderate extent, with these extraneous matters; thus the deficiency in the soil of either phosphate or potash, so that water could not be supplied with these constituents before being elevated in the plant by capillary attraction, would necessarily cause faulty structure, and prevent the completion of the plant.

There are many other causes which may operate to produce this diseased condition, such as the denuding of the surface-soil of the necessary nutriment, without a mechanical disintegration of the subsoil, sufficient to permit the roots to ramify in the soil in search of food. Shallow plowing in many soils would produce this result.—Over-dosing by lime, often causes a malformation in the early growth, so that the plant cannot find and appropriate the necessary amount of inorganic food. Corn roots are known to permeate to the length of five and a half feet, when disintergration would permit such travel; and therefore the want of proper mechanical conditions, capable of arresting the root ramification, must produce a corresponding mal-formation above the surface of the soil; and not only a diminution of growth, but the endosmose action of the surface would be deranged for want of proper structure, and such receipts from the atmosphere as must follow from the induction of moisture from particle to particle by condensation, carrying with it the fertilizing gases of the atmosphere, would be arrested. All these, and many other causes, may tend to this false condition of the plant. We are not ready to claim either of them separately, as the exact cause of the difficulty, but we apprehend that among them it may be found.

We should like to see an acre in Tennessee fully under-drained and sub-soil plowed, and supplied with the necessary amount of calcareous matter, phosphates and potash, bearing a corn crop; we do not believe it would be "french'd," nor do we believe that it would suffer, from the absence of moisture, during the severest drouth. *Southern Homestead.*

"Exhausting Crops."

How frequently we see this term used. Let the farmer remember that the whole earth, from the surface to the centre, is made up of the raw materials of which plants may be formed, and that a change of condition such as always will occur by atmospheric influences, brought about by under-draining and sub-soil plowing, must free from their prison houses the particles of soil, all the organic constituents of plants, and that by progression these become proper pabulum; and that in the absence of such progression, fertilizers may be used containing all the requirements of plants in a progressed condition. Let him remember that the question should not be "how little manure will raise a crop?" but rather "how much may be used with increased profit?" and rest assured he will discover no exhausting crops.

It is true that the judicious agriculturist will change the style of his crop so that the excretia of a former, may be used as food for a current crop; but unless he repeats plants of a similar kind too often in the same locality, he need but remember that every constituent of the soil is more valuable in crop form than when latent in the earth; and to know that the true rest of the soil is a proper succession of crops. If he desires to raise the same crops in the same place a number of times, he should know that he must add to the soil in a progressed condition such ingredients as that special crop most requires. Thus i the crop require potash, let him add unleached wood ashes, and find it an exhausting crop if he can. The mere fact that his soil contains the debris of feldspar, which the chemist will inform him has seventeen per cent, of potash, is no proo that the soil can bear potash plants, for although all potash originally came from feldspar, still in that condition it is not fi food to be assimulated by plant life. Bunker Hill Monument contains feldspar in large quantities; who would think of raising a cabbage on top of it? And the theorist who supposes that grinding it to powder would cause it to fertilise a cabbage is mistaken; it requires that mother nature should have raised lichens and mosses and have first taken up this potash and then re-deposited it in the soil, carrying it in turn through the various changes of the lower order of agricultural products before the potash is capable of sustaining a higher order of plants. He might as wel go to the mountain side and try to sustain his life by swallowing the powdered rocks and still in man he can find by analysis no constituent, that did not originally arise from the rocks.

Let the farmer be more practical, then he will find chastened science useful to him. Let him learn that when his crop requires potash he must take it from other crops of less value. Thus the ashes of the oak tree can fertilize the cauliflower, while the feldspar cannot; the bone of the animal will supply the phosphate while phosphatic rock will not, and its more immediate value may be increased by such treatment as will render the phosphate of the bone soluble and divisible, and therefore suited to sustain plant-life. We have yet to see a soil at all exhausted, which has received a fair dose of bones decomposed by sulphuric acid, mixed with the dried blood of animals.

Southern Homestead.

MILDEW.—Loudon supposed this to be caused by the soil being colder than the atmosphere in which the plants grow.—This may be one of many circumstances tending to cause mildew, but it is doubted whether it is the cause itself.

Green Manures.

Green manuring, or the plowing under of green crops in their living state, attracted the early attention of civilised men, and has been practised more or less from the time of Xenophon, who wrote about 400 years before the commencement of our era. He recommended green plants to be plowed into the soil, and even that crops should be cultivated for that purpose; for these, he says, "enrich the earth as much as dung." The lupin is named as an exexcellent manure by most of the early writers on agriculture, and is cultivated at the present day in Spain, Italy, Tuscany, and the south of France, for the purpose of being plowed into the soil.

The plowing under of green crops is directly opposed to burning peat, or turf, in regard to intention and effect, and is particularly serviceable where the basis of vegetable mould is to be decreased. The soil, manured by them, receives all the vegetable food contained in the seed sown, the quantity of which in peas and buckwheat is not very inconsiderable. Some plants employed for this purpose, as peas, turnips, clover, &c., push down their roots into the soil far below the reach of the ordinary plow, and whatever nutriment they find there, they suck up and bring to the surface, in the form of green manure, and administer it to the growth of other plants, as wheat, barlet, oats, and rye; the principle being to enrich the soil by setting is quick-growing plant to draw organic matter from the air, and inorganic from the subsoil, and then plowing it in. When the green crops are turned into the soil, besides enriching its staple with fertilising matter, they promote the fermentation and decomposition of woody fibres buried near the surface, which is a useful incumbrance in an undecayed state, so far as any immediate effect is concerned. In general, they should be plowed under, if possible, when in flower, or at the time when the flower is opening; for, in this stage of growth, they contain the largest quantity of soluble matter.

For poor, light and sandy soils, these green manures do well; and also for poor clays, which, however, are much improved by having the subsoil burnt, or rather charred, with peat, spent tan bark, saw dust, apple pomace, or other cheap fuel. And as green vegetable matters ferment, or sour, when undergoing decomposition, the land should be limed just before or soon after plowing under the plants.

The vegetables grown for this purpose should possess the following properties in order to be cultivated with economy, and attain the desired end:—1st, They should flourish on poor soils; 2d, should require but little labor to cultivation; 3d, have cheap seed; 4th, be of quick and sure growth; 5th, stand all weathers and vermin; 6th, run their roots deep; 7th, bring up such inorganic matter from the subsoil as the succeeding crops require; 8th, should smother weeds; and 9th, they should produce a large quantity of herbage, that will readily decay in the soil.

The plants best known for the above purposes, may be described and compared as follows:—

Jerusalem Artichoke.—The Jerusalem artichoke, is one of the plants found by Boussingault to draw its nitrogen almost entirely from the air. Hence, it is recommended as an ameliorating crop, when plowed under before the tubers are formed.

This plant may be propagated in most parts of the United States by sets from the roots, and will grow in any soil moderately moist, especially such as are sandy and light. The sets should be planted in early spring, and may be cultivated in a similar manner as the common potato. As it rather prefers shade to open culture, it thrives well in orchards; and instead of exhausting the land, it is stated that it will produce abundantly for 10 or more years in succession, without manure, even upon poor soils. It has further been stated, that it does not require much tilling after it has once been planted; for it is only necessary to draw the tops out of the ground, when ripe, the remaining roots being sufficient to produce the next year's crop, without resetting; and thus they continue from year to year until they die of old age. All these properties seem to render this plant suitable for orchards; the pulling up of the tops opens the ground, while the avoidance of digging, after once set, will spare the roots of the trees many a wound from the plow or hoe.

Bokhara Clover.—The celebrated Bokhara or tree clover, is a biennial herbaceous plant of very striking appearance, 6 to 12 feet high, covered with spikes of white pea-like blossoms, resembling those of some kinds of clover, which also shed a sweet perfume. Nature increases the woody fibre of this plant for support as it elongates its gigantic stem. If, however, it is cut at a height of 2 or 3 feet, it will be found nearly as succulent as the common red clover.

Mr. Robert Arthur, of Edinburgh, states that no plant whatever, within his knowledge, will produce so much weight of vegetable matter in an equal space and time; and were it only for its production, as a fertiliser, it is a boon to the agricultural world. In the economical formation of manure, he suggests that it might be libererally supplied with other food during the summer, to young cattle and pigs, in an open yard, profusely bedded over with layers of turf, peat, earth, ferns, straw, weeds, &c., and thereby save such outlay in the purchase of other manures.

The seed of this clover may be sown in early spring, in drills, 18 inches asunder, in any part of the United States south of Pennsylvania. The plants should be kept free from weeds when young, by scraping them out with a hoe. The crops may be cut four or five times in the course of a season, as fodder for soiling, or for the purpose of being converted into manure.

Buckwheat.—This well known plant stands high in the scale of green manures, as two crops may be raised on the same ground in a year, with little labor in its culture, and but a small outlay for seed. Its roots, however, do not run very deep into the soil. Its ash sometimes abounds in salts of potash and of lime, nitrogen and phosphoric acid being the most valuable ingredients with which they are combined.

Buckwheat is usually sown on light, silicious and calcareous soils, but it will grow well on lands that are either stony or poor. The yield commonly ranges from 2 to 4 tons of stalks and leaves to an acre, and from 20 to 40 bushels of seed. It may be sown in the spring soon after the disappearance of frost, for a summer crop; or immediately after the harvesting of wheat, oats, or rye, or still later, for a crop in the fall. The period of growth is usually about two months. For a fallow crop, from 1½ to 2 bushels of seed may be sown to an acre, which should be lightly harrowed in. The plant is very luxuriant, and predominates over most weeds. As soon as the blossoms begin to appear, it is ready to bury in the soil. This is done first by passing a roller over the field, and following immediately after with a plow; or it may be mown half way up the stalks, and then plowed under with the stubble.

If the land is intended for turnips, and the buckwheat is plowed under in the fullness of its sap, it will become rotten, or decomposed, in about 10 days. The ground may then be plowed again, followed by the harrow, with a light dressing of guano, and then sown with the turnip seed, and afterwards rolled.

But if the land be intended for wheat, the ground may lie two or three weeks after the buckwheat is plowed in, or until the grass or weeds begin to start; then plow the ground a second time, and sow the wheat the usual way; or, if the weather is favorable, and the season far advanced, the wheat may be sown directly after turning under the green crop.

Red Clover.—The common broad-leaved clover, from its hardihood and adaptation to nearly all kinds of soil; its certain rapid growth; abundant yield; cheapness of seed, quick decay, when incorporated with the soil; and the great depth to which its roots penetrate the earth, is regarded, in the United States, as one of the best of fallow crops. Under favorable circumstances, it will yield from 4 to 8 tons of geen herbage per acre, in the course of a season; and its roots, which sometimes run into the soil to a depth of 2 or 3 feet, are nearly equal in bulk to half the stalks and leaves.

The following analyses of the ash of red-clover hay, by Professor Way, are given in the Journal of the Royal Agricultural Society of England, one specimen grown on silicious sand, and the other on clay:—

	Grown on silicious sand.	*Grown on clay.*
Silica,	4.03	2.66
Posphoric acid,	5.82	6.88
Sulphuric acid,	3.91	4.46
Carbonic acid,	12.92	20.94
Lime,	35.02	35.76
Magnesia,	11.91	10,53
Per-oxide of iron,	0.98	0.95
Potash,	18.44	11.30
Soda,	2.13	——
Choride of sodium	4.03	0.58
Ch'de of potassium,	——	5.92
	89·95	99.88

From the above analysis, it will be seen that the ingredients of this plant, when grown on sand and clay, are, in most respects, singularly alike. The greatest discrepancies occur in the amount of potash and carbonic acid. The proportion of sulphuric acid, however, does not truly represent the total amount of sulphur in the plant. For, 100 lbs. of the ash of dry clover, grown on sand, yielded 1 21-100ths lbs. of sulphur; and 100 lbs. of that grown on clay' yielded 1 45-100ths lbs. Hence, fully two thirds of the whole sulphur was dissipated in the combustion, and it is fair to conclude that at least this proportion must have existed in the form of sulphate of lime, (gypsum,) or in some other condition than sulphuric acid.

Red clover is extensively cultivated in various parts of the United States, not only as a superior forage or hay, but is frequently turned under in the summer or fall, to enrich the ground preparatory to a crop of wheat, or in the ensuing spring for the benefit of one of the Indian corn. It is thought by some persons that the best time for plowing it in, is the rankest and most succulent stage of its growth; while others maintain, from facts founded upon the results of actual experiments, that it is best to leave it to the period just preceeding the decline of the flower, when its extractive matter is most abundant.

Clover is usually sown in this country in early spring with wheat or other grain, or with winter wheat in the fall. If intended for a fallow crop, it may be sown in February or March, while the ground is still subject to freezing and thawing, in order that the seed may gain admission into the soil without harrowing in. The quantity to be sown to an acre may vary from 10 to 15 lbs. When sown with wheat, if the first season's growth be luxuriant after harvesting the grain, the clover may be pastured in the autumn, or suffered to fall and waste on the ground, the former being the most economical. The following year, the early crops may be taken off for hay, and the second, after partially ripening its seeds, may be plowed in; and thus it carries with it, a full crop of seed for future growth. It is usual when wheat is cultivated, to turn in the clover when in full flower in July, and allow the ground to remain undisturbed till the proper time for sowing the grain; when it may be cross plowed if necessary, or the wheat be sown directly on the ground and harrowed in. This system gives alternate crops of grain and clover, and with the use of such saline manures, as may be necessary to replace those abstracted from the soil, it will sustain the greatest fertility. With a slight dressing of these, when the land is in good condition, the first crop of clover may be taken off, and yet allow a sufficient growth for turning in.

"It is a common observation of intelligent farmers, that they are never at a loss to renovate such lands as will produce even a modearte crop of clover. Poor clayey lands have been brought to a clover-bearing state, by sowing an early and late crop of oats in the same season, and feeding them off on the ground. Poor sandy soils may be made to sustain clover, with the aid of manure, ashes, and gypsum, combined with the free use of the roller. This object is much facilitated by scattering dry straw over the surface, which affords shade, increases the deposit of dew, and prolongs its effects. Whenever the period of clover-producing is attained, the improvement of the soil may be pushed with a rapidity commensurate with the inclination and means of the owner."—*American Farm Book.*

(*To be Continued.*)

[From the Southern Argus.]

Cotton Growing in the Old North State.

PRODUCTION VALLEY, PITT CO.,
N. C., April 18th. 1860.

Dear Editors:—Notwithstanding the changeable weather, accompanied with recent frost, the farmers of this county may be called a "go ahead people." The cotton crop is seeded, and many are busily engaged planting corn:

It may not be amiss for the readers of the Argus to hear of the rapid strides old Pitt is making towards "agricultural grandeur."

Cotton seems to be the mania here, and all the larger planters have been, and are yet devoting the most of their time and attention to its cultivation. The crop this year will be much larger than ever before planted. Judging from the increased number of acres alloted to the hand for tillage, in my neighborhood, I am inclined to think we are "hard to beat."

About fourteen acres to the hand is considered fair cropping with us, but I can refer to a neighbor (an old and experienced cotton planter) who has prepared and expects to have sixteen acres cultivated to each average hand; and as bales of cotton heretofore sold for fifty dollars, at least, this will realize for the planter eight hundred dollars to each and every laborer annually. I think it was in 1858 (the first time) this gentleman had his cotton fields surveyed, and in the fall he ascertained the yield to be more than a bale to the acre throughout the whole crop. So you see, Messrs. Editors, I mention this case in order to give you, and especially your brother Virginians, an idea of what we are doing down in old Pitt.

And lastly, just in proportion as the results gained are wonderful, it becomes a question of high importance and interest for us all. We do not work our negroes hard, but on the contrary they are a happy set, well clothed and well fed, attend church on Sabbath, and in short would not exchange their condition for any other.

A PITT PLANTER.

Cattle and Cotton.

One of our Northern political economists recently discovered that the cattle "crop," of the Northern States, is greater than the cotton crop of the South.—The absurdity of such a comparison as a test of sectional wealth very naturally excites the risibilities of the Southern journals, which do make political economy a subject of study. It is something like the discovery that the North raised more hay than the South raised cotton, but the fact was overlooked that the North consumed all it raised, and had nothing for export. Just so with cattle. It is the surplus of a country which makes its accumulated wealth, not what it consumes. A Charleston paper, referring to the subject, says:

"The South, after feeding and clothing herself, sends off to foreign lands nearly two hundred millions of dollars' worth of produce every year—the greater portion of which is cotton. In other words, the South adds to the permanent wealth of the country two hundred millions of dollars annually. But what does the north export? Does she export cattle?—No. Does she export hay? No. She exports comparatively nothing. Her cattle and hay are consumed in this country. She adds very little by exports to the permanent wealth of the country. The North supports herself, but sends but little off to bring back money into the country. The South supports herself, and besides that, sends off produce enough to bring back two hundred millions of dollars a year. A planter's' prosperity is determined by his *net profits*, not by what he raises and consumes on his own plantation. So it is of a nation. Need there be any cause of surprise then that cotton attracts the attention of politicians more than cattle and hay? We think not; and so will everybody else who will take a common sense view of the subject."—*Philadelphia Journal.*

Mules vs. Horses.

The prominent reasons for using mules in teaming and farm labor in preference to horses, are briefly explained in the following views expressed by a correspondent of the *Genesee Farmer:*

They live to a much greater age; a mule has scarcely attained his natural strength at twelve years old, an age in which horses have commenced rapid deterioration in value and usefulness; the average life of the mule is about thirty years, but often at forty they are known to perform efficiently the the most laborious services.

A team of mules will accomplish almost the labor of horses with the consumption of about one.third less provender. Within the last few years mules have been extensively introduced into the teaming operations of the manufacturing district in which I reside, and are universally considered here more efficient and economical for that use than horses. Mules are subject to but few of the diseases that prevail among horses. Their hard skin and soft hair render them less liable to be galled by the harness or affected by cutaneous diseases.

They are said never to be infested by vermin. The vision of the mule is much more quick and distinct than that of the horse, and therefore they are less liable to shy or become frightened. They are surefooted to a proverb. The mule excels the horse and emulates the ox in his steady and uniform efforts in labor. It is objected to mules that besides their disagreeable braying they are obstinate and slow, but these defects I believe may be overcome by gentleness and practice.

The breeding of these animals is a subject worthy the serious and considerate reflection of the farmer. It is evident to my mind that mules may be bred with less care and expense than horses, and they will command a price nearly equal to that of an ordinary horse, while the demand for them is prompt and continually increasing.

Horticulture.

Macon County Agricultural Society.

In the absence of any Report from the Executive Committee, as yet, on the subect of a Premium List, in addition to what has already been published, I am authorized by the Chairman of that Comnittee to say that Premiums will be offered or the following, and probably many other rticles which may deserve merit, at the air in November next:

Garden and Field Crops.

For the best Sweet Potatoes, Irish Potaoes, Chinese Sugar Cane Syrup, Sugar rom Chinese Sugar Cane, Pumpkin, Cabage Heads, Onions and Turnips.

Mechanical Work.

For the best Two Horse Plough, One Horse do., Bull Tongue do., (stocked,) rain Cradle, Ox Yoke, Bedstead, Cooprs' Ware, Split Bottom Chairs, Boots, addle and Bridle.

Domestic Manufactures, Needle Work, Fruit, &c.

For Needle Work, (different varieies,) Mixed Janes, Bark colored Janes, pread or Coverlet, Janes Coat made by a dy, Cheese, Butter, Pound Cake, Loaf orn Bread, Preserves, Pickles, Blackberry Wine, and for the best variety of Maretable Apples.

The amount of the different Premiums ill be determined and published at the roper time. M. STAFFORD, Sec'y
Macon Co. Ag. Soc.

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For the N. C. Planter.

ELIZABETHTOWN, N. C.,
July 9th, 1860.

MESSRS. EDITORS:—In the July No. the Planter, I noticed a short article from Gardner's Monthly, recommending Tobacco leaves as a preventive of the ravages of the Borer upon Peach Trees. Permit me to give your readers a *better* remedy or preventive, a *dead shot* to the worm.

Take Snuff, very common, cheap Snuff, apply it by sprinkling just under and around the shoulder of the tree, and with a syringe inject a strong mixture of it with water into the holes whence you have taken the insect.

This application twice or three times, during the year, will thoroughly relieve your trees from their injury. *I know it will.* One pound of snuff will be enough for fifty trees. Yours, &c.,

JOHN A. RICHARDSON.

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Improving Grapes and other Fruits by Crossing.

The art of crossing Grapes and other fruits, has recently been so far perfected, that any desired cross or, "hybrid" (as such seedlings are erroneously termed) may be obtained with the utmost degree of certainty; and we may now look forward with confidence to the production of seedlings, suited to vineyard culture in this country, which will rival the most famous grapes of Europe, and other seedling fruits surpassing in excellence any that we now possess.

During a recent visit to England, we found that the old practice of depending on chance seedling was pretty generally abandoned,—and the method of Mr. T. A. Knight, explained now many years ago in the Horticultural Societies' transactions, but not much practised since his day by more modern fruit raisers, was in general favor, and with the best results.

As many in America have never heard of Mr. Knight's plan, we will give it before we conclude.

Before, however, proceeding to describe the process by which any two grapes or other fruits may be crossed, so as to produce with certainty a seedling having the best qualities of the two parents, we will state in what manner, and by what kind of crossings we think vineyard grapes may be obtained, suited to the climate of the United States.

The best native grapes yet discovered on this continent, it must be confessed, do not possess qualities fitted to make wine as perfect and delicious as that which has been produced in Europe. It is then to the foreign grapes we must look for the higher qualities of delicate texture and exquisite flavor, which are wanting in the natives. Much might no doubt be accomplished towards improving our native grapes by high and careful culture; by strengthing the stock; and by selecting the best grapes and the best seeds from our best natives, and planting them for many years; but the task is a formidable one, and the result at best uncertain. No point sufficiently high could ever be reached by that process. Nor can we hope that a perfect wine grape will be produced by chance American seedlings, or even by the scientific crossing of natives with each other, for we cannot surely suppose that the native grapes, in their unions with each other, can produce qualities which the parents do not themselves possess.

By crossing the most hardy and perfect of the foreign grapes with the best natives, we may hope to obtain seedlings possessing the vigor of the natives united to the higher qualities of size, texture and flavor, which exists only in the foreign kinds.

The *Black Hamburgh*, for instance, is nearly hardy out of doors in this country, as far north as New York, and has frequently been ripened in favorable situatians, in gardens near that city. It is, all things considered, the best grape grown, in Europe or America. In the hothouse and cold grapery, the Black Hamburgh will endure more bad treatment than any other grape. It resists mildew, under severe extremes of moisture or dryness, with great power. It is a strong grower, a free setter; its bunches are large, its fruit is scarcely surpassed in qualities suited to all tastes, by any of the new kinds. From the Black Hamburgh, in a cross with our natives, we should expect to obtain rare qualities.

In our first attempts at crossing, we should not go back to the wild fox grapes for a native parent. The grape which we should take, in preference to all others, for a union with the Black Hamburgh, would be the *Diana*. This, we think, is the best of all our true natives grapes. It is an immensely strong grower; an uncommonly free bearer; by far the richest and most delicate in flavor: and is, to say the least, as little affected by mildew as any other, we think much less so. Its juice contains a large proportion of saccharine matter, and its entire flavor is peculiarly aromatic and wine-like.

We do not anticipate that the highest result would be attained by a single cross of a native with a foreign grape. Possibly a cross between the Black Hamburgh and the Diana might not be sufficiently hardy to stand out of doors successfully. We might have to go back again with the seedling to a cross with some more hardy native; or if the first named cross were hardy, the flavor might not be precisely that which we should desire, and a more perfect, grape might be obtained by a cross with some other hardy foreigner, and this latter seedling, if not altogether hardy, might be strengthened by crossing with another native, and so on.

Another cross which we should advise, would be the Diana with the *Chasselas de Fontainbleau*. This is a white grape, quite as hardy as the Black Hamburgh, and nearly a month earlier. It has been ripened in this country in the open air.—It is a free grower and immense bearer.—The form of its bunches very much resembles that of Diana. Its flavor is delicate and extremely delicious. We have no faith in any other Chasselas as a cross.

The *White or the Grizzely Frontignan* would make another good parent with the Diana. This is a very hardy, free growing grape, with a fine muscat flavor.

We do not think that the muscat grapes can ever be crossed with our natives so as to produce a hardy seedling. They are all too late and do not ripen their wood sufficiently to stand our winters. We must look to the Frontignan grapes for the muscat flavor. The Black Frontignan is more tender than the White or the Grizzly.

The *Zinfindal*, we think, would be a good grape to cross with the Diana. It is a jet black grape, comes early to maturity, produces a good crop, and resists mildew well. Its flavor, however, is second rate.

The true old *Dutch Sweetwater* is the earliest of all the foreign grapes. It is six weeks earlier than the Black Hamburgh, when standing side by side. It is a delicious grape, an immense bearer, and ripens its wood perfectly. Its union with the Diana would certainly, we think, produce a first rate early grape.

The *Muscat Muscadine* is another early

grape, and a very free bearer. Its color is white, and its flavor resembles the Sweetwater. It does not readily mildew, and we think it would answer admirably for a cross with the Diana.

The *Threntham Black* is a very early new grape, said to be uuite hardy out of doors in England, and seldom affected by mildew. We have seen a vine of this variety bearing twenty large bunches of well perfected grapes, in an eleven-inch pot.—We should try this also with the Diana.

Those who have any favorite native grapes, suited to make wine, in any part of the United States, may try a cross of them with the best foreign grapes, as for instance the Herbemont and Scuppernong at the South; the Mustang grape in Texas; the Catawba in the West; the Concord at the North, &c. We think the Catawba, well grown, is next to the Diana in all its qualities as a wine or table grape.

The *process of Crossing*, by which a union may be effected between two grapes or other fruits, with positive certainty, we will now proceed to describe.

The flowers of grapes and most other fruits, with a few exceptions, (as the palm and the osage orange,) are hermaphrodite, that is, they possess both male and female organs in the same flower. By this new method of crossing, the flower on one kind of grape is scientifically deprived of its male organs, and thus made of necessity (as we may say) the *mother*, or *female parent*; while the other, being permitted to retain its male organs, becomes the *father* of the new seedling. Our suggestion would be, in most attempts at crossing, to make foreign grapes the males, and natives the females.

The process is one requiring much care and skill, and not a great number of flowers could be operated upon at a time; but this would not be necessary, as a single bunch, properly impregnated, would produce upwards of two hundred seeds.

The vines to be crossed should all be kept in a cold vinery. It is not important that they should be grown in close proximity, but of course they should be brought into flower at the same time, in fact, as nearly as possible at the same moment.—The best way to accomplish this, would be to grow both the natives and foreign grapes in large pots, as they could then be so placed, and so treated, as to hasten or retard the time of flowering, and thus more successfully attain the object.

Now, we will suppose that you have a Diana and a Black Hamburgh vine, both in flower at the same time. The Diana is first to be changed from the hermaphrodite condition to a female; that is, the male organs are to be removed from the flower. With a pair of fine-pointed grape-thinning scissors, carefully clip off the *stamens* (the male organs) and it will then no longer possess the power to impregnate itself, it will become essentially a female. In doing this be very careful not to injure the pistil of the Diana flower. This operation must be performed upon the flower the instant it is developed, so that you can see the stamens. In some kinds the anthers burst before the petals open, in which case the petals have to be carefully removed, which, when done carefully, will not injure the other essential organs of the flower. Now having a flower of the Black Hamburgh just perfected, you will take it off by the stem with a pair of tweezers, being careful not to shake it in the least, and dust the pistil of the Diana flower with the pollen of the Black Hamburgh, applying it very gently, just touching the pistil with the pollen, or fertilizing dust which lies on top of the anther. This being properly done, a cross is effected, scientifically and positively, and the seedling from that union will exhibit the characterists of the two parents, with a degree of certainty and exactness truly surprising.

While in England, last winter, we saw many extraordinary and highly gratifying results from this method of crossing, some of the most famous new grapes being obtained in this way. The Black Hamburgh being crossed with the Dutch Sweetwater, the Hamburgh being the female and the other the male, produced the splendid *Golden Hamburgh*; the union of the Black Hamburgh as male, with Muscat of Alexandria, brought forth the superb *Muscat Hamburgh*. The Trentham Black, the Marchioness of Hastings, the Bowood Muscat, Lady Down's Seedling, and that magnificent new grape, the Buckland Sweetwater, are all the results of crossing European grapes with each other, by this scientific method. Not more than one or two decidedly good seedling grapes had been produced in England for thirty years previous to this practice. No crosses have been made with native grapes, or at least none of any value.

What glorious results are these from careful scientific crossing! And with such success in the commencement of this new era in grape culture, what may we not expect in all the world hereafter! What high incentives to patient experiment are here offered to the amateur and the professional grape grower! And how do paltry chance seedlings, picked up in American woods and gardens, sink into insignificance before the prospect, now opened, of true scientific progress in the production of seedling grapes!

The method of crossing above described, may be performed with all fruits as successfully as with the grape. At the Royal Gardens, at Frogmore, England, we saw a valuable cross between the Morello Cherry and the May Duke. The fruit department at these Gardens is under the directions of Mr, John Powel, of whom it is not too much to say, that he is beyond comparison the best practical pomologist in the world. Mr. Powel has practised crossing according to the specific rules we have here given, very extensively, and with the most gratifying success. The Morello Cherry, it is well known, has a tendecy to form barren wood, instead of fruit spurs.—The May Duke, on the contrary, has the habit of forming fruit spurs freely. The object of the cross above alluded to, was to impart to the Morello the habit of the May Duke, and this Mr. Powell most happily accomplished. Of three blossoms impregnated by hand, two of them furnished seed which produced trees bearing Morello fruit with the prolific habit of the May Duke —the May Duke giving part of its delicious flavor, united to the keeping qualities of the Morello; a great improvement upon the latter.

Experiments with Pears have been equally successful. Among other instances we saw a cross between the Bergamot and Seckel, the result being a half Bergamot and half Seckel, in habit of the tree, and, in the size, quality and flavor of the fruit.

The same thing may be done with Strawberries, Currants, Gooseberries, Apples, and all other fruits. Mr. Powell says he feels certain that by this method of crossing we have the nature of seedlings to be produced entirely under our control. Very interesting and useful experiments might be performed by crossing, for instance, the Bartlett and the Seckel pear. There is plenty of luxuriance of growth in the Bartlett, and great productiveness in the Seckel, with high flavor in both; they also ripen nearly at the same time. Such a cross as this, properly effected, could not fail to be a great acquisition. So of a cross between the Bartlett and the Lawrence—this last being a very vigorous tree, rather later than the Bartlett, and altogether a very excellent pear. Other combinations might be suggested by a little reflection, even more desirable than these.

The production of Seedlings, the world over, has heretofore been entirely the result of accident, the wind or the bees doing for us, by chance, what we had not intelligence enough to do for ourselves. But now that science and ingenious practice have shown us the art of performing this work, with precision and almost mathematical certainty, a great revolution cannot fail to be effected, in our estimate, not only of our native and foreign grapes, but of all fruits now considered first rate; and we fancy but few years will elapse before our Pomological societies will be called upon to revise their entire lists of select fruits; and in this eager and progressive age, it may be somewhat difficult for them to keep pace with the march of improvement in this direction.

Watering with Cold Water.

There has been no lack of suggestions for improvements in Hothouse building. The smallest plant cabinet may now be fashioned on truly scientific principles. But there are a few points connected with the subject that have not had the attentian they merit. On one of these we now propose to say a few words.

We would have the water employed in Horticulture, always of the same temperature as the soil about the plants to be watered, and we would have arrangements made in every house for insuring this desirable end.

We are aware that some amongst the savans distinguished in horticulture, care little for an uniformity of temperature, and yet boast of their success,—and we also know that a few even advocate a high degree during the day, and a low degree during the night, and point to the luxuriance of vegetation in a state of nature—where

> "——the leaves of the trees
> Are rocked to rest by the cool night breeze,"

as the greatest authority we can follow in such matters.

All this may be very well. We have no sympathy with those philosophers who demand that the thoughts and practices of their brethren shall be either stretched out to the length, or shortened to the narrow dimensions of their Procustean bed,—and neither have we any ambition to stand with the scales of Nemesis, weighing out and balancing right to this one practitioner, and wrong to the other. That there are some excellent growers, who can successfully hurry along their plants during the bright hours of sunshine, and when night comes "shut off the steam" of growth, until

> "The Sun shall again kiss the dew from the Rose,"

we know is a fact. This may be owing to other causes, and in spite of the treatment. Whether or not, we will not be so critical as to inquire.

But our own affections wander away after that idea which tempts its captives to a moderate degree of uniformity in temperature, and, as a necessary consequence, to take care that the water employed is of the same temperature as that of the house. We have seen so many good deeds flow from this idea, that we cannot help loving it, and have observed so much evil spring from its opposite, that we have a dread of entering any plant house where it holds the power.

Hydropathy may be all very well as a curer of animal disorders; but cold water has been the death of thousands of plants,—and of cuttings especially, the number annually destroyed by it is astounding.

We get up a hotbed or a propagating pit, and so carefully arrange it that we can insure a regular bottom heat of 80° or 90°, as the cutting pots dry, we get water from the well or hydrant at 55° or 60°, or even less, use it over the cuttings, and they die. Then we scold the pit, blow up the house, heap anathemas on the sand, cry out about the fungus, have a great deal to say about the drainage, and make a great deal of complaint about every thing generally; but the right thing, the cold water, or rather the sudden change of temperature brought about by it, whoever thinks of it?

Some few there are, certainly, who can look on Mr. Kidd's now famous system of setting out Verbena cuttings into "slush" by water, and set in full light, and learn by its great success, that it is not in the sand, or the drainage, or the mere degree of temperature, that we have to look for the secret; but in the one regular degree of humidity and temperature that is maintained. In fact, there is scarcely any thing of which cuttings cannot be struck in mere water, if one regular degree of heat and moisture is only sustained.

And it is the same with plant growth. We have entered the houses of florists to whom it was very important to have flowers for early Spring marketing grow tolerably well through the winter; and have heard them complain that "for some reason or other their plants did not seem to grow at all, though they maintained a temperature of 55° or 60°. The reason has usually been aparent; that water often dipped out from under an ice barrel has been employed for watering, and the temperature of the soil in the pots has rarely been much above freezing point. This is particularly the case with those who use cold water in houses that have no side lights. In houses that have these additions, the early morning sun assists in raising the temperature of the soil so cooled by the water.

It is not usual with us to draw much consolation from "nature," because we know how liable this extremely patient and forbearing character is to be abused and misinterpreted. But the present season is a remarkable instance of the want of warm water in the soil. We have had here one of the most open and mild Springs on record. Since February there has been, with a few exceptions, scarcely a cold day. On the contrary, the majority have been what, for the season, we would call "warm;" and yet vegetation is scarcely more advanced now (May 2d,) than we sometimes see it at the same date in April; and the ground is so cold, that though "corn-planting" time is nearly come, the nursery hands complain of cold fingers, while bedding-in young stocks and seedlings. All this arises from the absence of warm rain, in which this season, though otherwise so open, has been singularly deficient; and without which warming of the soil, vegetation cannot grow.

But we value practical experience, in

the benefits of keeping up an uniform degree of high temperature in the soil, by using water of the same temperature as the house, far more than any analogical illustration borrowed from nature. And knowing well the advantages of the practice we recommend, we would advise all getting up hot or greenhouses, to make as good provision for heating the water to be used in them, as for heating the air of the structures. This will often be expensive; but it will be money well spent. And indeed, it may be a question whether warm water to keep up a temperature, is not, after all, as cheap as fuel to raise a temperature which cold water has depressed.

To those of our lady friends who have but a few plants to attend to, the matter will be easily accomplished by adding warm water to that which they use for their pets; raising it thus to the required temperature. But on a larger scale, it will require more thought and planning before hand.

Cultivate the Grape.

The increased attention which is being given in this country to the culture of this delicious fruit, must be a source of great satisfaction, no less to the epicurist and moralist than to the economist, since it promises the most beneficial results in whatever aspect it may be considered.—We scarcely know of any crop which offers greater inducements, aside from the consideration of immediate profit, than the grape, and yet the profits attending its culture are by no means so remote as many people are apt to suppose. The grape vine is hardy and matures very rapidly, and on every farm there are "broad acres," amounting to several millions in the aggregate, which are considered valueless for the ordinary purposes of cultivation, but which are well adapted to vintage utility, and might in a little time become the most profitable of any. The richness of the wild and free growth of the native grape, as witnessed in the forests througout the country and in every variety of soil and clime, is full of instruction as to what might be expected if the hand of culture were applied in furtherance of nature's efforts; and the marked success which has thus far attended this culture, leaves it no longer a matter of experiment or of doubt that it is an established success. It has in its success produced results which are beyond immediate estimation. The culture of this important fruit will be sure to make itself felt in every department of social life, and will constitute an important landmark in the path of civilization itself. It has done so in the past of Europe—why not in the future of America.

In France, where about one third of the soil is devoted to vintage purposes, grapes have been found so conducive to the preservation of health, as well as to its restoration when impaired, that those districts particularly celebrated for their vineyards are resorted to by invalids, with an effect usually as decided as it is beneficial.

The pure grape possessing the richest sanitary qualities, which is found abundantly in the French vineyards, is, in its true state, of transparent hue when held in the light, and no hard bulb is perceptible. Having resolved itself into juice, it is then but a liquid inclosed by the outer covering. The grapes imported from thence do not preserve this normal lusciousness, as they require to be gathered before the ripening process is completed. Though the same degree of luxuriance may not attend its culture in this country as in France, it is yet capable of a development which cannot fail to add largely to our luxurious and refined wants as well as to those of necessity.

But, apart from all other considerations, there are those of moral potency. It is an acknowledged fact, that in the wine-producing countries of Europe the besetting sin drunkenness is vastly less, in proportion to population, than in the United States and inded, in all countries where the scarcity of wine gives rise to the substitute of ardent spirits as the general beverage.—According to the Government returns of the year 1859, the people of France consumed 850,000,000 gallons of wine, and this amount distributed among a population of 30,000,000, showed fewer returns of drunkenness than is afforded by the statistics of New England during the same year, out of a population of 3,000,000.

The inducements to the culture of this fruit are great and manifold; and it is to be hoped that those already engaged in it will not slacken their efforts, which should be seconded by all our associations for the promotion of the agricultural and horticultural interests of the country.—*N. Y. News.*

From the Beaufort (N. C.) Journal.

The Grape Culture. No. 1.

Mr. Pool:—As there is often much said in your paper about the prosperity of this section, and as there are abundant opportunities for improvement, I wish to throw out a few hints, to those who own land, and wish to cultivate it to greater profit. The question has often been asked if a line of steamships were established between Beaufort Harbor and New York, where would the freight come from. This is a formidable question. Certainly the citizens of this section are showing but little preparation for the encouragement of such an event.

No section of country can be expected to prosper through the energy of two or three citizens; all must catch the spirit of improvement; and those who till the soil should never be the last to shake off their lethargy.

To this end I propose to direct the attention of the agricultural portion of your readers to points, by which they may profit. You are aware that North Carolina pays hundreds of thousands of dollars annually for wine; and grapes are sometimes imported into this State.

This is a disgrace to the citizens of the whole State, especially, of the eastern portion. Nearly all the good American grapes were found indigenous in this state. The Scuppenong in the eastern, and the Catawba in the western portions of the state. And yet these grapes, and the wine from them, is gaining a world wide reputation, while our own people know but little of their excellence. The Scuppernong is peculiarly an eastern N. C. grape, and grows and bears beyond any other grape the world has ever produced. Its wine cannot be excelled; and every man who has one acre of land in this section, could have this wine for his dinner every day in the year, the fruits of his own industry. Yet our people are without grapes and for the want of a better beverage, many spend large sums of money for a miserable counterfeit, called whiskey.—The soil and climate of Carteret County is peculiarly adapted to the Scuppernong, and if the people would generally direct their attention in that way, in ten years the county would receive more money from that one article, than all its other exports added togethor. Our hotels would have another attraction then for visitors—pure sweet wine, the best in world. Drunkenness would be less common than it now is; for it is a remarkable fact, that *the people of a wine growing country are never a drunken people.*

This is a reform measure and not a step backward, as some suppose. It would be an improvement, by becoming a source of great income, by furnishing the people with a luxury that would be as healthful as it is agreable, by displacing bad and poisonous liquers, and thereby diminishing drunkenness.

Could the people of Eartern N. Carolina became aroused on this and other subjects over which they have been long sleeping, then we should have the long sought period of prosperity to dawn upon us. In my next I shall speak of the history of our best grapes.

GIMEL.

Apples Identical.

Thomas Meehan, Dear Sir: I see by the April number of the *Gardener's Monthly* that T. Carter, of Raleigh, N. C., says, the Equinetely Apple is identical with Buckingham and Fall Queen. This is a mistake. Buckingham is a striped apple, while, Equinetely is never striped, but evenly shaded with dark red. Equinetely is also far superior as a keeper and in flavor; to say it is identical with Fall Queen, is like saying such a man looks like John Smith; these Queens and Kings are about no names at all, or are made to fit a large variety of apples. I think it is also a mistake to say nurserymen have grown and fruited them side by side. They may have grown the trees but have not fruited them, for it is but 4 years since this variety was brought out, and we were the first nurserymen in the United States who cultivated it; we set a few grafts at that time in the limbs of large trees, which even have not fruited yet.

Four years since we got our dozen specimens of fruit from the only bearing trees known in N. C., and from which trees we have since that time propagated our stock.

Those whose trees produce fruit corresponding with Buckingham, have not got it true; and as the Equinetely is a very popular and estimable variety, it need not

Ayer's Sarsaparilla.

A compound remedy, in which we have labored to produce the most effectual alterative that can be made. It is a concentrated extract of Para Sarsaparilla, so combined with other substances of still greater alterative power as to afford an effective antidote for the diseases Sarsaparilla is reputed to cure. It is believed that such a remedy is wanted by those who suffer from Strumous complaints, and that one which will accomplish their cure must prove of immense service to this large class of our afflicted fellow-citizens. How completely this compound will do it has been proven by experiment on many of the worst cases to be found of the following complaints:

Scrofula and Scrofulous Complaints, Eruptions and Eruptive Diseases, Ulcers, Pimples, Blotches, Tumors, Salt Rheum, Scald Head, Syphillis and Syphilitic Affections, Mercurial Disease, Dropsy, Neurolgia or Tic-Doulouruex, Debility, Dyspepsia and Indigestion, Erysipelas, Rose or St. Anthony's Fire, and indeed the whole class of complaints arising from Impurity of the Blood.

This compound will be found a great promoter of health, when taken in the spring, to expel the foul humors which fester in blood at that season of the year. By the timely expulsion of them many rankling disorders are nipped in the bud.—Mulitudes can, by the aid of this remedy, spare themselves from the endurance of foul eruptions and eruptions and ulcerous sores, through which the system will strive to rid itself of corruptions, if not assisted to do this through the natural channels of the body by an alterative medicine. Cleanse out the vitiated blood whenever you find its impurities bursting through the skin in pimples, eruptions, or sores; cleanse it when you find it is obstructed and sluggish in the veins; cleanse it whenever it is foul, and your feelings will tell you when. Even where no particular disorder is felt, people enjoy better health, and live longer, for cleansing the blood. Keep the blood healthy, and all is well; but with this pabulum of life disordered, there can be no lasting health. Sooner or later something must go wrong, and the great machinery of life is disordered or overthrown.

Sarsaparilla has, and deserves much, the reputation of accomplishing these ends. But the world has been egregiously deceived by preparations of it, partly because the drug alone has not all the virtue that is claimed for it, but more because many preparations, pretending to be concentrated extracts of it, contain but little of the virtue of Sarsaparilla or any thing else.

During late years the public have been misled by large bottles, pretending to give a quart of Extract of Sarsaparilla for one dollar. Most of these have been frauds upon the sick, for they not only contain little, if any, Sarsaparilla, but often no curative properties whatever. Hence, bitter and painful disappointment has followed the use of the various extracts of Sarsaparilla which flood the market, until the name itself is justly despised, and has become synonymous with imposition and cheat. Still we call this Compound Sarsaparilla, and intend to supply such a remedy as shall rescue the name from the load of obloquy which rests upon it. And we think we have ground for believing it has virtues which are irresistible by the ordinary run of the diseases it is intended to cure. In order to secure their complete eradication from the system, the remedy should be judiciously taken according to directions on the bottle.

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SEPTEMBER NUMBER, 1860.

NORTH CAROLINA PLANTER.

A MONTHLY

Bought
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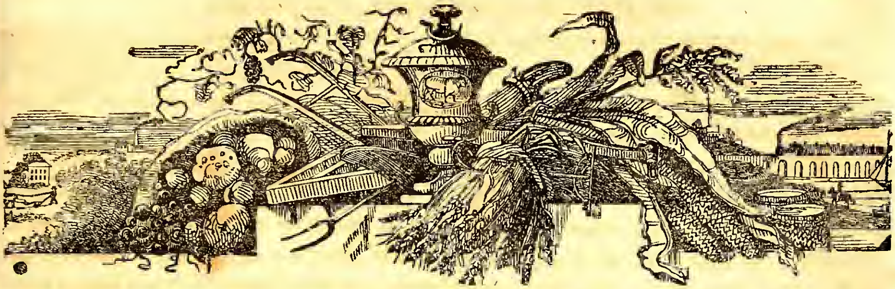

THE NORTH-CAROLINA PLANTER.

Devoted to Agriculture, Horticulture, and the Mechanic Art.

Hœ tibi erunt artes.—VIRGIL. { These are the pursuits to which you should direct your attention.

VOL. 3. RALEIGH, N. C., SEPTEMBER, 1860. NO. 9.

Selections.

Manures are the riches of the soil.—CHAPTAL.

To the Farmers and Planters of North Carolina.

In January last, we took charge of the North Carolina Planter, with a view of making it an acceptable home journal for the farmers and planters of the State. Whether we have succeeded in our efforts or not, must be left to others to decide; of one thing we are certain, no pains on our part have been spared for this purpose.—But one subscriber has expressed any dissatisfaction, a large majority of them, together with the press of the State, particularly the religious papers, have endorsed our enterprise. But, the limited number of our subscribers is discouraging. In relation to this matter, we refer you to our Editorial in this number; our only object in this article, is to call the attention of our readers and others to the importance, yea, the absolute necessity of an improved system of Agriculture in this State. The exhaustion of the soil is apparent to every one. The increase of population demands its improvement to prevent the emigration of the people to the far West. Now, what will the good sense of the people suggest, the improvement of the soil, its proper cultivation, and thereby retain the increase of the population; or their removal to prevent starvation?

Let fools ridicule agriculture as a science, sneer at what they choose to term book-farming, believe that they can make good crops and keep up the fertility of their lands: we will not undertake to disturb their blind delusion, but beg leave to address ourself to the intelligent yeomen of the Old North State. The principal problem for solution in agriculture is, how to restore those substances which have been extracted from the soil by cultivation, and which cannot be supplied by the atmosphere. This can only be done by the application of manure. If the manure applied does not insure an adequate compensation for the loss sustained by cultivation, the fertility of the soil must decrease. What kind of manure to apply, how to apply it, depends upon a knowledge of the science of agriculture. A certain crop extracts certain properties from the soil, these properties must be restored by the application of that kind of manure containing these properties. Can the reviler of book-farming understand this? How then can he compensate his land for the injury done it? The importation of manures from a foreign country is equivalent to an importation of meat and bread. In process of time, the elements of these manures are converted into grain, fodder, and become food for man and beast, enter into the animal body and return again to their original form. In this way manure is converted into food; this food is consumed by animals necessary for our subsistence, and these animals again make and become manure. By this modus operandi the fertility of the soil is preserved and the human family supported, and the emigration of the people from one State to another prevented. The analysis of manures furnishes us with a knowledge of the different properties they contain, and demonstrates that in these manures we return to the soil the ashes of the plants which have been taken from the soil by tillage, and made to serve as food—points out the soluble and insoluble salts necessary to the production of plants, and which can only be furnished by a fertile soil.

In supplying these manures to the soil, we return those constituents which the crops have removed from it, and thereby renew its ability of producing new crops; in short, we restore its disturbed equilibrium. Without the assistance of those who are capable of appreciating the Planter, we despair of increasing its circulation. We have said all, done all in our power, and now leave the matter in the hands of those interested in the support of this or some other agricultural journal. Without an increase of our subscription list, we cannot work at the oar any longer than this year.

Every subscriber to the Planter has it in his power to send us another, some a club of five, ten or twenty. Let this be done, and the Planter will rest upon a sure footing. There is a time for all things, the State elections are over, now is the time to look to the seeding of your wheat, the improvement of your lands, and the dissemination of agricultural information among your neighbors.

This number will be devoted almost exclusively to the subject of manuring, and we recommend the following selections to our patrons.—ED. N. C. PLANTER.

WASTE OF MANURE.

The loss of manure is a subject which demands most serious attention. Until within a few years, little was known about the true character of manures, and consequently, of the importance of protecting them against loss.

The first causes of waste are *evaporation* and *leaching.*

EVAPORATION.—-Evaporation is the changing of a solid or liquid body to a vapory form. Thus common smelling salts, a solid, if left exposed, passes into the atmosphere in the form of a gas or vapor. Water, a liquid, evaporates, and becomes a vapor in the atmosphere. This is the case with very many substances, and in organic nature, both solid and liquid, they are liable to assume a gaseous form, and become mixed with the atmosphere. They are not destroyed, but are merely changed in form.

As an instance of this action, suppose an animal to die and to decay on the surface of the earth. After a time, the flesh will entirely disappear, but is not lost. It no longer exists as the flesh of an animal, but its carbon, hydrogen, oxygen, and nitrogen, still exist in the air. They have been liberated from the attractions which held them together, and have passed away; but they are ready to be again taken up by plants, and pressed into the service of life.

The evaporation of liquids may take place without the aid of any thing but heat; still, in the case of solids, it is often assisted by decay and combustion, which break up the bonds that hold the constituents of bodies together, and thus enable them to return to the atmosphere, from which they were originally derived.

It must be recollected that every thing, which has an *odor* (or can be smelled), is evaporating. The odor is caused by parts of the body floating in the air, and acting on the nerves of the nose. This is an invariable rule; and, when we perceive an odor, we may be sure that parts of the material, from which it emanates, are escaping. If we perceive the odor of an apple, it is because parts of the volatile oils of the apple enter the nose. The same is true when we smell hartshorn, cologne, etc.

Manures made by animals have an offensive odor, simply because volatile parts of the manure escape into the air, and are therefore made perceptible. All organic parts in turn become volatile, assuming a gaseous form as they decompose.

We do not see the gases rising, but there are many ways by which we can detect them. If we wave a feather over a manure heap, from which ammonia is escaping, the feather having been recently dipped in manure, white fumes will appear around the feather, being the muriate of ammonia formed by the union of the escaping gas with the muriatic acid. Not only ammonia, but also carbonic acid, and other gases which are useful to vegetation, escape, and are given to the winds. Indeed it may be stated in few words that all of the organic part of *plants* (all that was obtained from the air, water, and ammonia), constituting more than nine tenths of their dry weight, may be evaporated by the assistance of decay or combustion.—The organic part of *manures* may be lost in the same manner; and, if the process of decomposition be continued long enough, nothing but a mass of mineral matter will remain, except perhaps a small quantity of carbon which has not been resolved into carbonic acid.

The proportion of solid manure lost by evaporation (made by the assistance of decay,) is a very large part of the whole.—Manure cannot be kept a single day in its natural state without losing something. It commences to give out an offensive odor immediately, and this odor is occasioned, as was before stated, by the loss of some of its fertilizing parts.

Animal manure, contains all of the substances contained in plants, though not always in the correct relative proportions to each other. When decomposition commences, the carbon unites with the oxygen of the air, and passes off as corbonic acid; the hydrogen and oxygen combine to form water (which evaporates), and the *nitrogen is mostly resolved into ammonia, which escapes into the atmosphere.*

If manure is thrown into heaps, it often ferments so rapidly as to produce sufficient heat to set fire to some parts of the manure, and cause it to be thrown off with greater rapidity. This may be observed in nearly all heaps of animal excrement.—When they have lain for some time in mild weather, gray streaks of *ashes* are often to be seen in the centre of the pile. The organic part of the manure having been *burned* away, nothing but the ash remains,—this is called *fire-fanging.*

Manures kept in cellars without being mixed with refuse matter are subject to the same losses.

When kept in the yard, they are still liable to be lost by evaporation. They are here often saturated with water, and this water in its evaporation carries away the ammonia, and carbonic acid which it has obtained from the rotting mass. The evaporation of the water is rapidly carried on, on account of the great extent of surface. The whole mass is spongy, and soaks the liquids up from below (through hollow straws, etc.), to be evaporated at the surface on the same principle as causes the wick of a lamp to draw up the oil to supply fuel for the flame.

Liquid Manure containing large quantities of nitrogen, and forming much ammonia, is also liable to lose all of its organic part from evaporation (and fermentation), so that it is rendered as much less valuable as is the solid dung.*

From these remarks, it may be justly inferred that a very large portion of the *value* of solid and liquid manure as ordinarily kept, is lost by evaporation in a sufficient length of time, depending on circumstances, whether it be three months or several years. The wasting commences as soon as the manure is dropped, and continues, except in very cold weather, until the destruction is complete. Hence we see that true economy requires that the manures of the stable, stye, and poultry-house, should be protected from evaporation as soon as possible after they are made.

LEACHING.—The subject of *leaching* is as important in considering the *inorganic* parts of manures, as evaporation is to the organic, while leaching also affects the organic gases, they being absorbed by water in a great degree.

A good illustration of leaching is found in the manufacture of potash. When water is poured over wood-ashes, it dissolves their potash which it carries through in solution, making ley. If ley is boiled to dryness, it leaves the potash in solid form, proving that this substance had been dissolved by the water and removed from the insoluble parts of the ashes.

In the same way water in passing through manures takes up the soluble portions of the ash as fast as liberated by decomposition, and carries them into the soil below; or, if the water runs off from the surface, they accompany it. In either case they are lost to the manure. There is but a small quantity of ash exposed for leaching in recent manures; but, as the decomposition of the organic part proceeds, it continues to develope it more and more (in the same manner as burning would do, only slower), thus preparing fresh supplies to be carried of with each shower. In this way, while manures are largely injured by evaporation, the soluble inorganic parts are removed by water until but a small remnant of its original fertilizing properties remains.

It is a singular fact concerning leaching, that water is able to carry no part of the organic constituents of vegetables more than about thirty-four inches below the surface in a fertile soil. They would probably be carried to an unlimited distance in pure sand, as it contains nothing which is capable of arresting them; but, in most soils, the clay and carbon which they contain retain all of the ammonia; also nearly of the matters which go to form the inorganic constituents of plants within about the above named distance from the surface of the soil. If such were not the case, the fertility of the earth must soon be destroyed, as all of these elements which the soil must supply to growing plants would be carried down out of the reach of roots, and leave the world a barren waste, its surface having lost its elements of fertility, while the downward filtration of these would render the water of wells unfit for our use. Now, however, they are all retained near the surface of the soil, and the water issues from springs comparatively pure.

EVAPORATION removes from manure—Carbon, in the form of carbonic acid.—Hydrogen and oxygen, in the form of water. Nitrogen, in the form of ammonia.

LEACHING removes from manure—The soluble and most valuable parts of the ash in solution in water, besides carrying away some of the named above forms of organic matter.

Absorbents.

Before considering farther the subject of animal excrement, it is necessary to examine a class of manures known as *absorbents.* These comprise all matters which have the power of absorbing, or soaking up, as it were, the gases which arise from the evaporation of solid and liquid manures, and retaining them until required by plants.

The most important of these is undoubtedly *carbon* or charcoal.

CHARCOAL.—*Charcoal,* in an agricultural sense, means all forms of carbon, whether as peat, muck, charcoal hearths, river and swamp deposits, leaf mould, decomposed spent tanbark or sawdust, etc. In short, if any vegetable matter is decomposed with the partial exclusion of air (so that there shall not be oxygen enough supplied to unite with all of the carbon,) a portion of its carbon remains in the exact condition to serve the purposes of charcoal.

The offices performed in the soil by carbonaceous matter have been fully explained, and we will now examine merely its action with regard to manures. When properly applied to manures, in compost, it has the following effects:

1. It absorbs and retains the fertilizing gases evaporating from decomposing matters.

2. It acts as a *devisor,* thereby reducing the strength (or intensity) of powerful

anures—thus rendering them less likely injure the roots of plants; and also inreases their bulk, so as to prevent *fire nging* in composts.

3. It in part, prevents the leaching out f the soluble parts of the ash.

4. It keeps the compost moist.

The first-named office of choarcoal, *i. e.*, bsorbing and retaining gases, is one of e utmost importance. It is this quality hat gives it so high a position in the opinon of all who have used it. It is a grand urifier, and while it prevents offensive dors from escaping, it is at the same time toring its pores with food for the nourishent of plants.

5th. In its capacity as a *divisor* for maures, charcoal should be considered as xcellent in all cases, especially to use with trongly concentrated (or heating) animal anures. These, when applied in their atural state to the soil, are very apt to njure young roots by the violence of their ction. When mixed with a divisor, such anures are diluted, made less active, and onsequently less injurious. In composts, anures are liable, as has been before staed, to become burned by the resultant eat of decomposition; this is called *fire anging*, and is prevented by the liberal se of divisors, because, by increasing the ulk, the heat being diffused through a arge mass, becomes less intense. The ame principle is exhibited in the fact that t takes more fire to boil a cauldron of waer than a tea-kettle full.

6th. Charcoal has much power to arrest he passage of mineral matters in solution; o much so, that compost heaps, well suplied with muck, are less affected by rains han those not so supplied. All composts, owever, should be kept under cover.

7th. Charcoal keeps the compost moist rom the ease with which it absorbs water, nd its ability to withstand drought.

With these advantages before us, we ust see the importance of an understandng of the modes for obtaining charcoal.— Many farmers are so situated that they an obtain sufficient quantities of charcoal ust. Others have not equal facilities.— Nearly all, however, can obtain muck, and o this we will now turn our attention.

MUCK, AND THE LIME AND SALT MIXTURE.—By *muck*, we mean the vegetable deposits of swamps and rivers. It consists of decayed organic substances, mixed with more or less earth. Its principal constituent is *carbon*, in different degrees of development, which has remained after the decomposition of vegetable matter. Muck varies largely in its quality, according to the amount of carbon which it contains, and the perfection of its decomposition.— The best muck is usually found in comparatively dry locations, where the water which once caused the deposit has been removed. Muck which has been long in this condition, is usually better decomposed than that which is saturated with water. The muck from swamps, however, may soon be brought to the best condition. It should be thrown out, if possible, at least one year before it is required for use (a less time may suffice, except in very cold climates) and left, in small heaps or ridges, to the action of the weather, which will assist in pulverizing it, while, from having its water removed, its decomposition goes on more rapidly.

After the muck has remained in this condition a sufficient length of time, it may be removed to the barn-yard and composted with the lime and salt mixture, in the proportion of one cord of muck to four bushels of the mixture. This compost ought to be made under cover, lest the rain leach out the constituents of mixture, and thus occasion loss; at the end of a month or more, the muck in the compost will have been reduced to a fine pulverulent mass, nearly equal to charcoal dust for application to animal excrement. When in this condition it is called *prepared* muck.

Muck should not be used immediately after being taken from the swamp, as it is then almost always *sour*, and is liable to produce sorrel. Its *sourness* is due to *acids* which it contains, and these must be rectified by the application of an alkali, or by long exposure to the weather, before the muck is suitable for use.

LIME AND SALT MIXTURE.—The lime and salt mixture, used in the decomposition of muck, is made in the following manner:

RECIPE.—Take *three* bushels of shell lime, *hot from the kiln*, or as fresh as possible, and slake it with water in which *one* bushel of salt has been dissolved.

Care must be taken to use only so much water as is necessary to dissolve the salt, as it is difficult to induce the lime to absorb a large quantity.

In dissolving the salt, it is well to hang it in a basket in the upper part of the water, as the salt water will immediately settle towards the bottom (being heavier), and allow the freshest water to be nearest to the salt. In this way, the salt may be all dissolved, and thus make the brine used to slake the lim. It may be necessary to apply the brine at intervals of a day or two, and to stir the mass often, as the amount of water is too great to be readily absorbed.

This mixture should be made under cover, as, if exposed, it would obtain moisture from rain or dew, which would prevent the use of all the brine. Another objection to its exposure to the weather is its great liability to be washed away by rains. It should be at least ten days old before being used, and would probably be improved by an age of three or four months, as the chemical changes it undergoes will require some time to be completed.

The lime unites with the chlorine of the salt and forms *chloride of lime.*

The sodium, after being freed from the chlorine, unites with the oxygen of the air and forms soda, which, combining with the carbonic acid of the atmosphere, forms carbonate of soda.

Chloride of lime and carbonate of soda are better agents in the decomposition of muck than pure salt and lime; and, as these compounds are the result of the mixture, much benefit ensues from the operation.

When *shell* lime cannot be obtained, Thomaston, or any other very pure lime, will answer, though care must be taken that it do not contain much magnesia.

LIME.—Muck may be decomposed by the aid of other materials. *Lime* is very efficient, though not as much so as when combined with salt. The action of lime, when applied to the muck, depends very much on its condition. Air-slacked lime (carbonate of lime), and hydrate of lime, slacked with water, have but a limited effect compared with lime freshly burned and applied in a caustic (or pure) form —When so used, however, the compost should not be exposed to rains, as this would have a tendency to make *mortar* which would harden it.

Composting Stable Manure.

In composting stable manure in the most economical manner, the evaporation of the organic parts and the leaching of the ashy (and other) portions must be avoided, while the condition of the mass is such as to admit of the perfect decomposition of the manure.

Solid manures in their fresh state are of but very little use to plants. It is only as they are decomposed, and have the nitrogen turned into ammonia, and their other ingredients resolved into the condition required by plants, that they are of much value as fertilizers. We have seen that, if this decomposition takes place without proper precautions being made, the most valuable parts of the manure would be lost. Nor would it be prudent to keep manures from decomposing until they are applied to the soil, for then they are not immediately ready for use, and time is lost. By decomposing, we aim to save everything while we prepare the manures for immediate use.

SHELTER.—The first consideration in preparing for composting, is to provide proper shelter. This may be done either by means of a shed or by arranging a cellar under the stables, or in any other manner that may be dictated by circumstances. It is no doubt better to have the manure shed enclosed so as to make it an effectual protection; this however is not absolutely necessary if the roof project far enough over the compost to shelter it from the sun's rays and from driving rains.

The importance of some protection of this kind, is evident from what has already been said, and indeed it is impossible to make an economical use of manures without it. The trifling cost of building a shed, or preparing a cellar, is amply repaid in the benefit resulting from their uses.

THE FLOOR.—The *floor* or foundation on which to build the compost deserves some consideration. It may be of plank tightly fitted, a hard bed of clay, or better, a cemented surface. Whatever material is used in its construction (and stiff clay mixed with water and beaten compactly down answers an excellent purpose), the floor must have such an inclination as will cause it to discharge water only at one point.—That is, one part of the edge must be lower than the rest of the floor, which must be so shaped that water will run towards this point from every part of it; then—the floor being water-tight—all of the liquids of the compost may be collected in a

TANK.

This *tank* used to collect the liquids of the manure may be made by sinking a barrel or hogshead (according to the size of the heap) in the ground at the point where it is required, or in any other convenient manner.

In the tank a pump of cheap construction may be placed, to raise the liquid to a sufficient height to be conveyed by a trough to the centre of the heap, and there distributed by means of a perforated board with raised edges, and long enough to reach across the heap in any direction. By altering the position of this board, the liquid may be carried evenly over the whole mass.

The compost is made by laying on the floor ten or twelve inches of muck, and on that a few inches of manure, then another of manure, continuing in this manner until the heap is raised to the required height, always having a thick layer of muck at the top.

After laying up the heap, the tank should be filled with liquid manure from the stables, slops from the house, soap-suds, or other water containing fertilizing matter, to be pumped over the mass. There should be enough of the liquid to saturate the heap and filter through to fill the tank twice a week, at which intervals it should be again pumped up, thus continually being passed through the manure. This liquid should not be changed, as it contains much soluble manure. Should the liquid manures named above not be sufficient, the quantity may be increased by the use of rain-water. That falling during the first ten minutes of a shower is the best, as it contains much ammonia.

The effects produced by frequently wa-ring the compost is one of the greatest dvantages of this system.

The soluble portions of the manure are qually diffused through every part of the eap.

Should the heat of fermentation be too reat, the watering will reduce it.

When the compost it saturated with water, the air is driven out; and, as the water subsides, fresh air enters and takes its place. This fresh air contains oxygen, which assists in the decomposition of the manure.

In short, the watering does all the work of forking over by hand much better and much more cheaply.

At the end of a month or more, this compost will be ready for use. The layers in the manure will have disappeared, the whole mass having become of a uniform character, highly fetilizing, and ready to be immediately used by plants.

It may be applied to the soil, either as a top-dressing, or otherwise, without fear of loss, as the muck will retain the gases which would otherwise evaporate.

The cost and trouble of the foregoing system of composting are trifling, compared with its advantages. The quantity of the manure is much increased, and its quality improved. The health of the animals is secured by the retentation of those gases, which, when allowed to escape, render impure the air which they have to breathe.

The cleanliness of the stable and yard is much advanced as the effete matters, which would otherwise litter them, are carefully removed to the compost.

As an instance of the profit of composting, it may be stated that Prof. Mapes has decomposed ninety-two cords of swamp muck, with four hundred bushels of the lime and salt mixture, and then composted it with eight cords of fresh horse dung, making one hundred cords of manure fully equally to the same amount of stable-manure alone, which has lain one year exposed to the weather. Indeed one cord of muck, well decomposed, and containing the chlorine lime and soda of four bushels of the mixture, is of itself equal in value to the same amount of manure which has lain in an open barn yard during the heat and rain of one season, and is then applied to the land in a raw or undecomposed state.

The foregoing system of composting is the best that has yet been suggeeted for making use of solid manures. Many other methods may be adopted when circumstances will not admit of so much attention. It is a common and excellent practice to throw prepared muck into the cellar under the stables, to be mixed and turned over with the manure by swine.—In other cases the manures are kept in the yard, and are covered with a thin layer of muck every morning. The principle which renders these systems beneficial is the absorbent power of charcoal.

Liquid Manure.—*Liquid mannre* from animals may, also, be made useful by the assistance of prepared muck. Where a tank is used in composting, the liquids from the stable may all be employed to supply moisture to the heap; but where any system is adopted, not requiring liquids, the urine may be applied to muck heaps, and then allowed to ferment. Fermentation is necessary in urine as well as in solid dung, before it is very active as a manure.—Urine, as will be recollected, contains nitrogen and forms ammonia on fermentation.

It is a very good plan to dig out the bottoms of the stalls in a circular or gutter-like form, three or four feet deep in the middle, cement the ground, or make it nearly water-tight, by a plastering of stiff clay, and fill them up with prepated muck.

The prepared muck in the bottom of the stalls would absorb the urine as soon as voided, while yet warm with the animal heat, and receive heat from the animal's body while lying down at night. This heat will hasten the decomposition of the urea, and if the muck be renewed twice a month, and that which is removed composted under cover, it will be found a most prolific source of good manure. In Flanders, the liquid manure of a cow is considered worth $10 per year, and it is not less valuable here. As was stated in the early part of this section, the inorganic (or mineral) matter contained in urine, is soluble, and consequently is immediately useful as food for plants.

Different Kinds of Animal Excrement.

Stable Manure.—By stable manure we mean, usually, that of the horse, and that of horned cattle. When the animal is not increasing in any of its parts, it returns in the form of manure, and otherwise, the equivalent of every thing eaten. This case is one of the most simple kind, and is subject to many modifications.

The *growing* animal is increasing in size, and as he derives his increase from his food, he does not return in the form o manure as much as he eats. If his bone are growing, he is taking from his foo phosphate of lime and nitrogenous matter consequently, the manure will be poorer i these ingredients. The same may be sai of the formation of the muscles, in relatio to nitrogen.

The *fatting* animal, if full grown, make manure which is as good as that from animals that are not increasing in size, because the fat is taken from those parts o the food which is obtained by plants from the atmosphere, and from nature. Fat contains no nitrogen, and, consequently, doe not lessen the amount of this ingredient i the manure.

Milch Cows turn a part of thoir food to the formation of milk, and consequently, they produce manure of reduced value.

The solid manure of the horse is better than that of the ox, while the liquid manure of the ox is comparatively better than that of the horse. The cause of this is that the horse has poorer digestive organs than the ox, and consequently passes more of the valuable parts of his food, in an undigested form, as dung, while the ox, from chewing the cud and having more perfect organs, turns more of his food into urine than the horse.

Recapitulation.—Full Grown animals not producing milk, and full grown animals fattening, make the best manure.

Growing Animals reduce the value of their manure, taking portions of their food to form their boeies.

Milch Cows reduce the value of their manure by changing a part of their food into milk.

The Ox makes poor dung and rich urine.

The Horse makes rich dung and poor urine.*

Night Soil.—The *best* manure within the reach of the farmer is *night soil*, or human excrement. There has always been a false delicacy about mentioning this fertilizer, which has caused much waste, and great loss of health, from the impure and offensive odors which it is allowed to send forth to taint the air.

The value of the night soil yearly lost in the United States is, probably, about

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*Comparatively.

fifty millions of dollars (50,000,000); an amount nearly equal to the entire expenses of our National Government. Much of the ill health of our people is undoubtedly occasioned by neglecting the proper treatment of night soil.

That which directly affects agriculture, as treated of in this book, is the value of this substance as a fertilizer. The manure of man consists (as is the case with that of other animals) of those parts of his food which are not retained in the increase of his body. If he be *growing*, his manure is poorer, as in the case of the ox, and it is subject to all the other modifications named in the early part of this chapter. His food is usually of a varied chararter, and is rich in nitrogen, the phosphates, and other inorganic constituents; consequently, his manure is made valuable by containing large quantities of these matters. As is the case with the ox, the *dung* contains the undigested food, the secretions (or leakings) of the digestive organs, and the insoluble parts of the ash of the digested food. The *urine*, in like manner, contains a large proportion of the nitrogen and the soluble inorganic parts of the digested food. When we consider how much richer the *food* of man is than that of horned cattle, we shall see the superior value of his *excrement*.

Night soil has been used as a manure, for ages, in China, which is, undoubtedly, one great secret of their success in supporting a dense population, for so long a time, without impoverishing the soil. It has been found, in many instances, to increase the productive power of the natural soil three-fold. That is, if a soil would produce ten bushels of wheat per acre, without manure, it would produce thirty bushels if manured with night soil.

Some have supposed that manuring with night soil would give disagreeable properties to plants: such is not the case; their quality is invariably improved. The color and odor of the rose become richer and more delicate by the use of the most offensive night soil as manure.

It is evident that this is the case from the fact that plants have it for their direct object to make over and put together the refuse organic matter, and the gases and the minerals found in nature, for the use of animals. If there were no natural means of rendering the excrement of animals available to plants, the earth must soon be shorn of its fertility, as the elements of growth when once consumed would be essentially destroyed, and no soil could survive the exhaustion. There is no reason why the manure of man should be rejected by vegetation more than that of any other animal; and indeed it is not, for ample experience has proved that for most soils there is no better manure in existence.

A single experiment will suffice to show that night soil may be so kept that there shall be no loss of its valuable gases, and consequently no offensive odor arising from it while it may be removed and applied to crops without unpleasantness. All that is necessary to effect this wonderful change in night soil, and to turn it from its disagreeable character to one entirely inoffensive, is to mix with it a little charcoal dust, prepared muck, or any other good absorbent —thus making what is called poudrette.—The mode of doing this must depend on circumstances. In many cases, it would be expendient to keep a barrel of the absorbent in the privy and throw down a small quantity every day. The effect on the odor of the house would amply repay the trouble.

The manure thus made is of the most valuable character, and may be used under any circumstances with a certainty of obtaining a good crop. It should not be used unmixed with some absorbent, as it is of such strength as to kill plants.

HOG MANURE.—*Hog Manure* is very valuable, but it must be used with care.—It is so violent in its action that, when applied in a pure form to crops, it often produces injurious results. It is liable to make cabbages *clump-footed*, and to induce a disease in turnips called *ambury* (or fingers and toes). The only precaution necessary is to supply the stye with prepared muck, charcoal-dust, leaf-mould, or any absorbent in plentiful quantities, often adding fresh supplies. The hogs will work this over with the manure; and, when required for use, it will be found an excellent fertilizer. The absorbent will have overcome its injurious tendency, and it may be safely applied to any crop. From the variety and rich character of the food of this animal, his manure is of a superior quality.

Butcher's hog-pen manure is one of the best fertilizers known. It is made by animals that live almost entirely on blood and other animals refuse, and is very rich in nitrogen and the phosphates. It should be mixed with prepared muck, or its substitute, to prevent the loss of its ammonia, and as a protection against its injurious effect on plants.

Poultry House Manure.—Next in value to night soil, among domestic manures, are the excrements of poultry, pigeons, etc. Birds live on the nice bits of creation, seeds, insects, etc., and they discharge their solid and liquid excrements together. Poultry-dung is nearly equal value to guano (except that it contains more water), and it deserves to be carefully preserved and judiciously used. It is as well worth twenty-five cts. per bushel as guano is worth fifty dollars a ton (at which price it is now sold).

Poultry-manure is liable to as much injury from evaporation and leach as is any other manure, and equal care should be taken (by the same means) to prevent such loss. Good shelter over the roosts, and daily sprinkling with prepared muck or charcoal-dust will be amply repaid by the increased value of the manure, and its better action and greater durability in the soil. The value of this manure should be taken into consideration in calculating the profit of keeping poultry (as indeed with all other stock). It has been observed by a gentleman of much experience in poultry raising, that the yearly manure of a hundred fowls applied to previously unmanured land, would produce *extra* corn enough to keep them for a year. This is probably a large estimate, but it serves to show that this fertilizer is very valuable, and also that poultry may be kept with great profit, if their excrements are properly secured.

The manure of pigeons has been a favorit fertilizer in some countries for more than 2000 years.

Sheep Manure.—The manure of sheep is less valuable than it would be, if so large a quantity of the nitrogen and mineral parts of the food were not employed in the formation of wool. This has a great effect on the richness of the excrements, but they are still a very good fertilizer, and should be protected from loss in the same way as stable manure.

Guano.—Guano as a manure has become world renowned. The worn-out tobacco lands of Virginia, and other fields in many parts of our country, which seemed to have yielded to the effect of an ignorant course of cultivation, and to have sunk to their final repose, have in many cases been revived to the production of excellent crops and have had their value multiplied many fold by the use of guano. Although an excellent manure, it should not cause us to lose sight of those valuable materials which exist on almost every farm. Every ton of guano imported into the United States is an addition to our national wealth, but every ton of stable-manure, or poultry-dung, or night soil evaporated or carried away in rivers, is equally a *deduction* from our riches. If the imported manure is to really benefit us, we must not allow it to occasion the neglect and consequent loss of our domestic fertilizers.

The Peruvian guano (which is considered the best) is brought from islands near the coast of Peru. The birds which frequent these islands live almost entirely on fish, and drop their excrements here in a climate where rain is almost unknown, and where, from the air, there is but little loss sustained by the manure. It is brought to this country in large quantities, and is an excellent fertilizer, superior even to night soil.

It should be mixed with an absorbent before being used, unless it is plowed deeply under the soil, as it contains much ammonia which would be lost from evaporation. It would probably also injure plants. The best way to use guano, is in connection with sulphuric acid and bones, as will be described hereafter.

Other Orgianc Manures.

The number of organic manures is almost countless. The most common of these have been described in the previous chapters on the excrements of animals.—The more prominent of the remaining ones will now be considered. As a universal rule, it may be stated that all organic matter (every thing which has had vegetable or animal life) is capable of fertilizing plants.

The bodies of animals contain much *nitrogen*, as well as valuable quantities, the phosphates and other inorganic materials required in the growth of plants. On their decay, the nitrogen is resolved into *ammonia*,* and the mineral matter become valuable as food for the inorganic parts of plants.

If the decomposition of animal bodies takes place in exposed situations, and without proper precautions, the ammonia escapes into the atmosphere, and much of the mineral portion is leached out by rains. The use of absorbents, such as charcoal dust, prepared muck, etc., will entirely prevent evaporation, and will in a great measure serve as a protection against leaching.

If a dead horse be cut in pieces and mixed with ten loads of muck, the whole mass will, in a single season, become a most valuable compost. Small animals, such as dogs, cats, etc. may be with advantage buried by the roots of grape-vines or trees.

The *bones* of animals contain phosphate of lime and gelatine. The gelatine is a nitrogenous substance, and produces ammonia on its decomposition. This subject will be spoken of more fully under the head of 'phosphate of lime' in the chapter on mineral manures, as the treatment of bones is more directly with reference to the fertilizing value of their inorganic matter.

FISH.—In many localities near the sea-shore, large quantities of fish are caught and applied to the soil. These make excellent manure. They contain much nitrogen, which renders them strongly ammoniacal on decomposition. Their bones consist of phosphate and carbonate of lime; and, being naturally soft, they decompose in the soil with great facility, and become available to plants. The scales of fish contain valuable quantities of nitrogen, phosphate of lime, etc., all of which are highly useful.

Refuse fishy matters from markets and from the house are well worth saving.—These and fish caught for manure may be made into compost with prepared muck, etc.; and, as they putrefy rapidly, they soon become ready for use. They may be added to the compost of stable manure with great advantage.

Fish (like all other nitrogenous manures) should never be applied as a top dressing, unless previously mixed with a good absorbent of ammonia, but should when used alone be immediately plowed under to considerable depth, to prevent the evaporation—and consequent loss—of their fertilizing gases.

WOOLLEN RAGS, ETC.—*Woollen rags, hair, waste of woollen factory*, etc., contain both nitrogen and phosphate of lime; and, like all other matters containing those ingredients, are excellent manures, but must be used in such a way as to prevent the escape of their fertilizing gases. They decompose slowly, and are therefore considered all lasting manures, however, they are slow in their effects, and the most advantageous way to use them is to compost them with stable manure, or with some other rapidly fermenting substance which will hasten their decomposition and render them sooner available.

Rags, hair, etc., thus treated, will in a short time be reduced to such a condition that they may be immediately used by plants, instead of lying in the soil to be slowly taken up. It is better in all cases to have manures act *quickly* and give an immediate return for their cost, than to lie for a long time in the soil before their influence is felt.

A pound of woollen rags is worth, as a manure, twice as much as is paid for good linen shreds for paper making; still, while the latter are always preserved, the former are thrown away, although considered by good judges to be worth forty times as much as barn yard manure.

Old leather should not be thrown away. It decomposes very slowly, and consequently is of but little value; but, if put at the roots of young trees, it will in time produce appreciable effects.

Tanners' and curriers' refuse, and all other animal offal, including that of the slaughter-house, is well worth attention, as it contains more or less of those two important ingredients of manures, nitrogen and phosphate of lime.

It is unnecessary to add that, in common with all other animal manures, these substances must be either composted, or immediately plowed under the soil. Horn piths, and horn shavings, if decomposod in compost, with substances which ferment rapidly, make very good manure, and are worth fully the price charged for them.

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*Under some circumstances, nitric acid is formed, which is equally beneficial to vegetable growth.

ORGANIC MANURES OF VEGETABLE ORIGIN.—*Muck*, most important of the purely vegetable manures, has been already sufficiently described. It should be particularly borne in mind that, when first taken from the swamp it is often sour, or cold, but that if exposed for a long time to the air, or if well treated with lime, unleached ashes, the lime and salt mixture, or any other alkali, its acids will be *neutralized* (or overcome), and it becomes a good application to any soil, except peat or other soils already containing large quantities of organic matter. In applying muck to the soil (as has been before stated), it should be made a vehicle for carrying ammoniacal manures.

SPENT TAN BARK.—*Spent tan bark*, if previously decomposed by the use of the lime and salt mixture, or potash, answers all the purposes of prepared muck, but is more difficult of decomposition.

The bark of trees contains a larger proportion of inorganic matter than the wood, and much of this, on the decomposition of the bark, becomes available as manure.—The chemical effect on the bark, of using it in the tanning of leather, is such as to render it difficult to be rotted by the ordinary means, but, by the use of the lime and salt mixture it may be reduced to the finest condition, and becomes a most excellent manure. It probably contais small quantities of nitrogen (obtained from the leather), which adds to its value. Unless tan bark be composted with lime, or some other alkali, it may produce injurious effects from the *tannic acid* which it is liable to contain. Alkaline substance will neutralize this acid, and prevent it from being injurious.

One great benefit resulting from the use of spent tan bark, is due to its power of absorbing moisture from the atmosphere. For this reason it is very valuable for *mulching* young trees and plants when first set out.

SAWDUST.—*Sawdust* in its natural state is of very little value to the land, but when decomposed, as may be done by the same method as was described for tan bark, it is of some importance, as it contains a large quantity of carbon. Its ash, too, which becomes available, contains soluble inorganic matter, and in this way it acts as a direct manure. So far as concerns the value of the ash, however, the bark is superior to sawdust. Sawdust may be partially rotted while it acts as a *divisor*, and prevents the too rapid action of this when applied to the soil. Some kinds of sawdust, such as that from beech wood, form acetic acid and their decomposition, and these should be treated with, at least, a sufficient quantity of lime to correct the acid.

Soot is a good manure. It contains much carbon, and has, thus far, all of the beneficial effects of charcoal dust. The sulphur, which is one of its constituents, not only serves as food for plants, but, from its odor, is good protection against some insects.—By throwing a handful of soot on a melon vine, or young cabbage plant, it will keep away many insects.

Soot contains some ammonia, and as this is in the form of a *sulphate*, it is not volatile, and consequently does not evaporate when the soot is applied as a top dressing, which is the almost universal custom.

GREEN CROPS.—*Green crops*, to plough under, are in many places largely raised, and are always beneficial. The plants most used for this purpose, in our country, are clover, buckwheat, and peas. These plants have very long roots, which they send deep in the soil, to draw up mineral matter for their support. This mineral matter is deposited in the plant. The leaves and roots receive carbonic acid and ammonia from the air, and from water. In this manner they obtain their carbon. When the crop is turned under the soil, it decomposes, and the carbon, as well as the mineral ingredients obtained from the subsoil, are deposited in the surface soil, and become of use to succeeding crops. The hollow stalks of the buck-wheat and pea, serve as tubes, in the soil, for the passage of air, and thus, in heavy soils, give a much needed circulation of atmospheric fertilizers.

Although green crops are of great benefit, and are managed with little labor, there is no doubt but the same results may be more economically produced. A few loads of prepared muck will do more towards increasing the organic matter in the soil, than a very heavy crop of clover, while it would be ready for immediate cultivation, instead of having to lie idle during the year required in the production and decomposition of the green crop. The effect of the roots penetrating the subsoil is, as we have seen, to draw up inorganic matter, to be deposited within reach of the roots of future crops. In the next section we shall show that this end may be much more efficiently attained by the use of the subsoil plow, which makes a passage for the roots into the subsoil, where they can obtain for themselves what would, in the other case, be brought up for them by the roots of the green crop.

The offices of the hollow straws may be performed by a system of ridging and back furrowing, having previously covered the soil with leaves, or other refuse organic material.

In *high farming*, where the object of the cultivator is to make a profitable investment of labor, these last named methods will be found most expedient; but, if the farmer have a large quantity of land, and can afford but a limited amount of labor, the raising of green crops, to be plowed under in the fall, will probably be adopted.

It may be well to remark that there are various other fertilizers, such as the *ammoniacal liquor of gas-houses, soapers' wastes, bleachers' lye, lees of old oil casks, etc.*, which are all valuable as additions to the compost heap, or as applications, in a liquid form, to the soil.

In many cases (when heavy manuring is practised), it may be well to apply organic manures to the soil in a green state, turn them under, and allow them to undergo decomposition in the ground. The advantages of this system are, that the *heat*, resulting from the chemical changes, will hasten the growth of plants, by making the soil warmer; the carbonic acid formed will be presented to the roots instead of escaping into the atmosphere; and if the soil be heavy, the rising of the gases will tend to loosen it, and the leaving vacant of the spaces occupied by the solid matters will, on their being resolved into gases, render the soil of a more porous character. As a general rule, however, in ordinary farming, where the amount of manure applied is only sufficient for the supply of food to the crop, it is undoubtedly better to have it previously decomposed—*cooked*, as it were, for the uses of the plants—as they can then obtain the required amount of nutriment as fast as needed.

Absorption of Moisture.—It is often convenient to know the relative power of different manures to absorb moisture from the atmosphere, especially when we wish to manure lands that suffer from drought. The following results are given by C. W. Johnson, in his essay on salt, In these experiments the animal manures were employed without any admixture of straw.

		PARTS
1000	parts of horse dung, dried in a temperature of 100°, absorbed by exposure for three hours, to air saturated with moisture, of the temperature of 62°	145
1000	parts of cow dung, under the same circumstances, absorbed	130
1000	parts pig dung	120
1000	" sheep "	81
1000	" pigeon "	50
1000	" rich alluvial soil	14
1000	" fresh tanner's bark	115
1000	" putrified "	145
1000	" refuse marine salt sold as manure	49½
1000	" soot	36
1000	" burnt clay	29
1000	" coal ashes	14
1000	" lime	11
1000	parts sediment from salt pans	10
1000	" crushed rock salt	10
1000	" gypsum	9
1000	" salt	4

Muck is a most excellent absorbent of moisture, when thoroughly decomposed.

Mineral Manures.—These manures have four kinds of action when applied to the soil.

1st. They furnish food for the inorganic part of plants.

2d. They prepare matters already in the soil, for assimilation by roots.

3d. They improve the mechanical condition of the soil.

4th. They absorb ammonia.

Some of the minerel manures produce in the soil only one of these effects, and others are efficient in two or all of them.

The principles to be considered in the use of mineral manures are essentially given in the first two sections of this book. It may be well, however, to repeat them briefly in this connection, and to give the *reasons* why any of these manures are needed, from which we may learn what rules are to be observed in their application.

1st. Those which are used as food by plants. It will be recollected that the *ash* left after burning plants, and which formed a part of their structures, has a certain chemical composition; that is it consists of alkalies, acids, and neutrals. It was also stated that the ashes of plants of the same kind are always of about the same composition, while the ashes of different kinds of plants may vary materially. Different parts of the same plant too as we learned are supplied with different kinds of ash.

For instance, *clover*, on being burned, leaves an ash containing *lime*, as one of its principal ingredients, while the ash of *potatoes* contains more of *potash* than of any thing else.

Some soils contain every thing necessary to make the ashes of all plants, and in sufficient quantity to supply what is required, while other soils are either entirely deficient in one or more ingredients, or contain so little of them that they are unfertile for certain plants.

From this, we see that we may pursue either one or two courses. After we know the exact composition of the soil—which we can learn only from correct analysis—we may manure it with a view either to making it fertile for all kinds of plants or only for one particular plant. For instance, we may find that a soil contains very little phosphoric acid, and no potash. If we wish to raise potatoes on such a soil, we have only to apply potash (if the soil is good in other particulars,) which is largely required by this plant, though it needs but little phosphoric acid; while, if we wish to make it fertile for wheat, and all other plants, we must apply more phosphoric acid as well as potash. As a universal rule, it may be stated that to render a soil fertile for any particular plant, we must supply it (unless it already contains them) with those matters which are necessary to make the ash of that plant, it must be furnished with the materials required in the formation of *all kinds of vegetable ashes.*

It is not absolutely necessary to have the soil analyzed before it can be cultivated with success, but it is the *cheapest* way.

We might proceed from an analysis of the plant required and apply to the soil in the form of manure every thing that is necessary for the formation of the ash of that plant. This would give a good crop on any soil that was in the proper *mechanical* condition, and contained enough organic matter; but a moment's reflection will show that if the soil contained a large amount of potash, or of phosphate of lime, it would not be necessary to make an application of more of these ingredients—at an expense of perhaps three times the cost of an analysis. It is true that, if the crop is sold, and it is desired to maintain the fertility of the soil, the full amount of the ash must be applied, either before or after the crop is grown; but, in the ordinary use of crops for feeding purposes, a large part of the ash will exist in excrements of the animals; so that the judicious farmer will be able to manure his land with more economy than if he had to apply to each crop the whole amount and variety required for its ash. The best rule for practical manuring is probably to *strengthen the soil in its weaker points, and prevent the stronger ones from becoming weaker.* In this way, the soil may be raised to the highest state of fertility, and be fully maintained in its productive powers.

2d. Those manures which render available matter already contained in the soil.

Silica (or sand,) it will be recollected, exists in all soils; but in its pure state, is not capable of being dissolved, and therefore cannot be used by plants. The alkalies (as has been stated,) have the power of combining with this silica, making compounds, which are called *silicates.*—These are readily dissolved by water, and are available in vegetable growth. Now, if a soil is deficient in these soluble silicates, it is well known that grain, etc., grown on it, not being able to obtain the material which gives them strength, will fall down or lodge; but, if such measures be taken, as will render the sand souluble, the straw will be strong and healthy.—Alkalies used for this purpose, come under the head of those manures which develope the natural resources of the soil.

Again, much of the mineral matter in the soil is combined within particles, and is therefore out of the reach of roots.—

Lime, among other things, has the effect of causing these particles to crumble and expose their constituents to the demand of roots. Therefore, lime has for one of its offices the development of the fertilizing ingredients of the soil.

Green Manures.

(*Concluded.*)

Indian Corn (Zea mays)—From its rapid and luxuriant growth, its facility of decomposition when mixed with lime, and the large amount of fertilizing salts contained in its ash, this plant is highly valued for plowing in where the soil is deficient in humus that cannot be more economically obtained from some other source; but, from the trailing nature of its roots, which run not far below the surface of the ground, little or no benefit can be derived from its drawing up salts from any great depth in sour compact subsoils.

The ash of a sample of early white-flint corn plant, about 43 inches high, with the stalk just beginning to form, taken from a field near Albany, New York, on the 19th of July, according to Professor Emmons, yielded, in 100 parts, the following constituents:—

Composition.	Leaves.	Sheaths.	Roots.
Carbonic acid,.........	5.40	4.00	?
Silicic acid,............	15.60	15.60	36.60
Sulphuric acid,........	2.16	9.84	?
Phosphates,............	21.60	7.60	4.66
Lime,.....................	0·60	5.06	1.56
Magnesia,...............	0.27	1.64	0.34
Potash,..................	9.98	9.96	17.48
Soda,.....................	34.39	32.12	15.82
Chlorine,................	4.55	8.04	?
Organic matter,.......	5.50	5.40	?
	98.93	99.26	76.46

When used as a green manure, Indian corn may be sown broadcast, in June and July, at the rate of 3 or 4 bushels to an acre, and may be mown close to the ground, just as the stalks are beginning to form.—Then, in the operation of plowing, as soon as a furrow is opened, it may be partially filled by one or more persons with the newly mown plants by means of a rake or the hands, and followed directly by others with a liberal scattering of caustic lime.—As soon as a furrow is thus prepared, the next furrow slice will bury the green plant with the lime, decomposition will immediately take place, and the land will be brought into a fit condition for a crop of turnips, winter wheat, Timothy, or rye; or, in the spring following, the ground may be sown with wheat, oats, barley, grass seed, pumpkins, potatoes, or another crop of Indian corn.

Oats (Avena sativa.)—Of all the plants commonly cultivated in our fields, the oat seems to have the greatest power of drawing nourishment from the soil, and has been justly considered as an exhausting crop. The roots have a very strong vegetive power, and strike quite deep into the earth, even in a soil that is indifferently poor; and hence this plant may be cultivated with advantage to plow under to enrich the soil, but is inferior to clover, lupins, or buckwheat.

The composition of the ash of the whole plant, on the 9th of July, when the oat had attained nearly its full height, but yet quite green, and the grain had scarcely begun to form in the interior of the husk, according to an analysis by Professor John P. Nortion, while residing in Scotland, was as follows:

Potash and soda,........................	31.31
Chloride of sodium,.......................	8.10
Lime,..	5.40
Magnesia,...................................	4.52
Oxide of iron,..............................	0.21
Sulphuric acid,...........................	12 78
Phosphoric acid,..........................	20.09
Silica,..	17.05
	99.45

At this period of growth, the per cent. of water contained in the plant was 76 per cent., and that of the ash, calculated dry, 12½ per cent. It was remarked by Professor Norton, that the large quantity of sulphuric acid present at this stage of growth would have diminished as the plant matured, as he seldom found so much in the ash of the oat when ripe.

As the general composition of the oat is similar to that of the other cereals, it would be rational to infer that the green plant, buried in the soil, would serve as an excellent fertilizer for all our cereal crops. The mode of plowing under may be similar to that recommended in Indian corn, either with, or without the admixture of caustic lime.

Cow Pea (Phaseolus vel multiflorus?) The cow pea, or Yeatman pea, as it is sometimes called, like the pole bean and other runners of the same kindred, grows with a long vine, and produces an abundance of broad succulent leaves, which draw nitrogen and carbonic acid from the air; but its slight spindle-shaped roots do not penetrate so deeply into the soil as the long tap roots of clover, and consequently do not bring to the surface so great an amount of fertilizing salts from the subsoil below. Still, it is regarded as the most valuable, and certainly the cheapest fertilizer that can be employed at the south.

This plant will grow on poor, sandy land, and if sown early in March, it will mature two good crops in the season, from two successive plantings. It may be sown broadcast, or in drills, at the rate of 2 or 3 bushels to the acre, or sufficiently close to give a good and early covering to the ground, after which, it requires little or no culture. As soon as it is in full flower, or the pods begin to form, the vines may be cut off near the ground, or passed over with a field roller, and plowed under in a similar manner as clover, and suffered to decay, preparatory to planting a crop of sweet potatoes, beans, peas, or indian corn.

Turnip (Brassica rapa.)—In some parts of England, turnip tops are plowed under, when green, as soon as the bulbs are taken off the land; and it is stated that there is no better way for manuring for wheat.—The portion of the turnip bulbs which are left in the ground, when they are fed off by sheep, when plowed under, contributes to enrich the land for a crop of barley that is to follow.

According to Professor Way, the Journal of the Royal Agricultural Society of England, we mean analysis of the ash of six specimens of turnips were as follows:

	Bulbs.	Tops.
Silica,	1.81	3.99
Phoshhoric acid,	9.85	6.17
Sulphuric acid,	13.12	8.42
Carbonic acid,	11.96	9.98
Lime,	9.93	28.49
Magnesia,	2.61	2.81
Per-oxide of iron,	0.46	1.68
Potash,	34.10	15.21
Soda,	7.96	2.84
Chloride of sodium,	8.13	15.30
Chloride of potassium,	——	5.04
	99.93	99.94

From the above analysis, it will be seen that the ash of the tops differs from that of the bulb, chiefly in containing less phosphoric and sulphuric acids, less potash, but a great deal more lime. Neither in the top nor in the bulb is there much silica, but the ash of both contains much carbonic acid, and a considerable quantity of chloride of sodium (common salt.) This circumstance may, in part, explain the action of turnip tops in causing purging in sheep when they are first turned upon to feed. Other alkaline salts, such as the phosphates of soda and potash, and other organic salts of these bases, oxalate, tartrate, &c., and which are known as purgatives, exist largely in the leaves of the turnip.

The turnip, like most root crops, from the great development of its gas collecting leaves, is believed to be comparatively independent of the soil for nourishment.—It is stated that it may in reality have the property of adding, rather than taking from, the quantity of vegetable matter in the soil, even when entirely removed—for land has been found after several years cropping with turnips, all the produce being carried off, absolutely richer in organic matter than at first, the plant having returned to the soil more than it had taken from it. This principle is founded upon the belief that, in the circulation of vegetable juices of the plants, there is a continual ejection into the soil of matters not required in the economy of their growth; but whether the amount thus voided much exceeds that which is taken in by the roots, it is difficult to decide. It is extremely likely, however, that in broad-leaved plants of rapid growth this result may sometimes occur.

Vetch, or Tare (Vicia sativa.)—This plant is inferior in many of its qualities to the white lupin; yet, in Southern Germany, it is often sown on the stubble, and plowed in an after it has been touched with frost, and has begun to decay. Its period of growth is about 3 months, but will be hastened by the gypsium; it produces 6 or more tans per acre; its roots do not run run deep; its decay is rapid; and the whole plant abounds in potash, nitrogen, and phosphoric acid.

* * *

What an unfailing barrier against vice, immorality and bad habits are those tastes which lead us to embellish home.

The N. C. Planter.

RALEIGH, SEPTEMBER, 1860.

☞ Subscribers receiving the Planter with a *cross mark* opposite their address, are thereby notified that the No. thus marked closes the time for which they have paid, and unless renewed, the paper will be sent no longer. We earnestly request all who find the cross mark on this No. to promptly forward the money for the Planter another year, and if possible, send another name (or a club) along with it.

The cash in advance plan is now adopted by all the papers of the country, and we believe our subscribers will like it better than the credit system; hence, we have adopted it, and must rigidly adhere to it. No one will therefore feel agrieved when he finds his Planter discontinued, if he neglects to send on money to renew. *All* will be treated alike. We trust, however, all will like us so well, that each will send on his renewal as soon as he sees the *cross mark.*

The Necessity and Encouragement of Agriculture.

In the preceding numbers we have considered agriculture in many of its important aspects and phases, endeavored to point out its utility, yea, its absolute necessity, attempted to explain its philosophy. We will now direct your attention to the means of obtaining from mother earth the largest amount of produce for the support of the human family, and the animals necessarily employed in the operation. Agriculture is a science as well as an art. As a science it inculcates a knowledge of the vegetable kingdom, its physiology, phytology, the origin of its various elements, and the sources of their nourishment and support. Thus armed and equipped with a knowledge of the laws which govern the vegetable kingdom, we are enabled to derive and establish certain rules for the exercise of agriculture as an art, the principles upon which mechanical operations depend, such as the preparation of the soil for the support of plants, the cultivation of the different crops seeded, and their adaptation to the great variety of soils; the establishment of a certain rotation of crops that will preserve their fertility and restore those that have become exhausted by improvident treatment. In all these operations nothing in violation of the principles of agriculture as a science, is admissible. These violations however, have introduced all the false theories with which the human family are now afflicted, and from which they can only be relieved by the prescriptions of scientific agriculturists, and requiring all theories to correspond with experience, which is nothing more than tracing effects to their causes.

The cultivation of the same crop in the same field for a succession of years, renders the field incapable of producing that crop for many years, according to the nature of the soil, and never again will it produce the same crop to an advantage, until the properties extracted by that crop shall be restored. One field produces wheat, no peas; another field will yield the whole succulent family of crops, such as peas, beans, &c., but no tobacco. A third field produces a heavy crop of turnips, but will not bring clover. What is the reason that a field will not continue to produce the same plant for a succession of years? Why does one kind of plant succeed in the field when another fails?

These questions belong to agriculture as a science, and can only be answered by those endoctrinated in the fundamental principles in that science. How can the fertility of a field be preserved so as to produce the same plant or crop *ad infinitum?*

What is necessary to render a piece of land fertile and productive for all the plants and crops? These questions are propounded by those engaged in agriculture as an art, but they can only be answered by the scientific agriculturist. Take a field, the soil of which is not adapted to the production of a certain plant; experiments to make it produce this plant, conducted by those who understand agriculture as an art, can never succeed; let them on the other hand be made under the guidance of scientific agriculture, and the object will be accomplished by the first experiment.—Farmers are daily engaged in trying experiments, the results of which constitute huge, undigested masses of practical experience, from which they draw a certain system of cultivation which answers the desired end for certain places in certain soils; but this system does not always succeed in the same place, and is totally inapplicable to any other place in that vicinity. Here is a complete waste of time, labor and capital in these experiments! Our agricultural periodicals sent out as missionaries to civilize these heathens, are not taken, sought after and read, but scorned, ridiculed and rejected as the silly productions of book farmers, who write to make money. May the sun of science yet illuminate their path, guard them against the error of their ways, and furnish them with every guarantee of success. For this purpose we shall continue to send out the Planter, which is being strongly recommended by the press of this State, as an agricultural journal worthy of the patronage of every farmer in it. Has it received this patronage? We answer the question by stating that we have not more than fifteen hundred subscribers. How many Northern agricultural papers are now taken in this State? We apprehend that some of them have a larger circulation than the Planter, Is this encouraging to those who are laboring to furnish you with a home journal, equal in the opinion of your political and literary Editors, to any of its Northern contemporaries?

The system of farming in the North is not adapted to that of the South. Why then should Southern farmers be encouraging these Northern agricultural journals in preference to those of their own sunny side? Soon after the John Brown raid at Harper's Ferry, the whole South was enraged, incensed, swore eternal non-intercourse with the North—determined to open a direct intercourse with Europe—send her surplus produce abroad, and import her merchandise. In a few weeks our merchants were hastening North for their fall and winter supplies. So it is with many of the farmers of this State in patronizing the agricultural journals of the North. So it is with some of the papers in this and other Southern States, in publishing extracts from these journals, by way, we suppose, of recommending them to the favorable consideration of their subscribers. This should not be. We are Southern in our feelings and principles, independent of the North and the balance of mankind. We dislike to see this truckling to our adversary. Look at the number of Northern papers and periodicals in circulation, South, whilst enterprises of our own, superior in every respect, are poorly sustained. We would respectfully ask, how many Southern papers, literary or otherwise, are patronized by the North? On the other hand it would require a tall set of figures to enumerate the dollars paid by the South for Northern trashy, pictorial, illustrated and incendiary publications.—Without our cotton and other agricultural products, produced by slave labor, the North would starve; yet she would abolish this labor by the operation of her irrepressible conflict, and prevent its further extension by her squatter sovereignty doctrine. Whether by one or the other, is all the same to the South. One is an open, the other an insidious attack on our rights. We have been hewers of wood and drawers of water for our Northern, free soil, black republican, squatter sovereignty allies long enough. Let us send our cotton over to John Bull, and see what effect it will have on our half-brother Jonathan at the North. Strip him of the very shirt to his back, deprive him of employment for his white peons, and we'll warrant that his mental vision will not remain obfuscated much longer by his negro-philism.

The Old North State is said to be tenacious of her own, proud of her institutions, boasting of her sons wherever they turn up conspicuously, as many of them have done in other places, emulating other States. and excelling some in the inauguration of free and high schools for the education of their sons and daughters, and yet doing little or nothing for her only agricultural journal. We are aware of the fate of the predecessors of our journal. A fate justly befalling all enterprizes undertaken by men not qualified to conduct them. Their editors were intelligent men in other departments; let the shoe maker then stick to his last, and success will crown his efforts.

We sometimes imagine that the failure of the Farm Journal, the Cultivator, &c., is yet operating against the success of our paper; the subscribers to which may rest assured of one thing, should we fail to furnish a work to answer their expectations, it will never be discontinued in debt to them. For this you have the declaration, the obligation of the publisher, who controls our fiscal affairs, and his responsibility remains undoubted. Let our subscription list then be run up, till we get the name of every sensible farmer in the State, under the assurance the written obligation that justice will be done, if the heavens be destroyed. When we get the name of every intelligent planter, we shall have the means of going out as missionaries to civilize the anti-book farmers of the State.—In the performance of this duty, we shall call at Antioch and preach to the primitive christians in agriculture; they are neglecting the word, have built their temples, but employed no one to teach in them; the most of them are not subscribers to the Planter. The Agricultural Society in the county of Henderson has sent us the largest list of subscribers, for which we return them our thanks and best wishes for their success and prosperity. We also acknowledge a large number of subscribers from the Mt. Olive Agricultural Society, Wayne county; and to the Secretary of the Cumberland Agricultural Society, we are under many obligations for his individual exertions in increasing our list. We have many subscribers belonging to other Societies, and are thankful at all times for small favors. If all the Societies in the State would follow the example set by that in the county of Henderson, (named after that distinguished jurist of the State, and with whom we had the pleasure of an acquaintance when a grammar boy at Williamsborough Academy,) we should no longer have reason to complain of the want of patronage. Whilst we are making acknowledgements to a few of the Societies, for favors conferred, and complaining of the neglect of others, we must not omit to feel grateful to the many gentlemen in the State for their efforts in behalf of the Planter. Every Agricultural Society should endeavor to disseminate information in the surrounding country; their annual Fairs and exhibitions, though well calculated to excite an emulation among the farmers, will not entirely accomplish this object.—They should recommend some agricultural journal, and if ours will favorably compare with others, we have a right to expect the preference. But to return from this long digression to the subject matter of our Editorial, the encouragement of agriculture.

We promised in the outset to furnish the means of obtaining from a given surface of the earth, the largest amount of produce for the food of the animal kingdom. Whenever the cause of the barrenness in the soil has been ascertained, the knowledge which pointed out the cause will always suggest the remedy. Experience demonstrates that the mode of cultivation depends upon and must vary with the character of the soil and subsoil. Certain rocks impart to the soil the elements necessary to the growth of certain plants. This explains the necessity of the difference in the cultivation in different places, the properties of the soil depend upon the composition of the rocks, the disintegration of which formed these soils. Certain crops or plants require certain elements from the soil; they will not flourish in soil destitute of these elements. Analyze the ashes of different plants, and you at once discover the elements necessary to their production. Analyze your soils, and if they are destitute of these elements you at once know the cause of their refusing to grow certain plants, which require these elements, and the difficulty removed by the application of the proper elements. The uncivilized tiller of the ground, by which we mean the unitiated, uncultivated, who attributes all his success to his mechanical operations, is ignorant of the proper application of the power and the expenditure of capital that will result in remuneration and the prevention of waste. We have conversed with men in Wake county, who tell us that they farm it according to their own notions, that they don't want any instructions from books—that they farm it after the manner of their fathers, believing that their plowing and hoeing will impart fertility to the soil, and make it yield miraculously; at the same time they are ignorant of the modus operandi of these mechanical operations. These people require civilization, information, education, and the experience of others. These men would make us believe that their system of farming was good, profitable, paying at least six per cent. per annum, on the capital invested; at the same time we know, we see that their system of cultivation has worn out, and turned out much of their terra firma. The old fogies then, opposed to book farming, as they term it, to the improvement of the times, to the progressive age, must be civilized by the efforts of young America, instructed in the art of doubling their crops, by the improvement of their soil, and the use of the improved implements and utensils of farming. In whatever section of country you find a profound ignorance of agriculture, you will find the scarcity of another book besides the Planter. An enlightened agriculture and civilization go together, they cannot exist separate and apart.

Editor's Table.

Well, we are under the agreeable necessity of inaugurating an Editor's Table, for the purpose of noticing a few valuable works, which have been sent us by that public spirited bookseller, Pomeroy, Raleigh, N. C. As this is our first essay of the kind, we beg leave to premise that we shall recommend no book or publication to the public, unless in our opinion its merits entitle it to commendation. We are aware that it is no difficult matter for the author of works not worth the paper and ink it takes to print them, to get a large list of puffs to effect the sale of them.—We consider this indiscriminate laudation of trashy publications not only dishonest, but a fraud on the public; we would as soon recommend a thief or a fool to fill a responsible position, as a work not only destitute of merit, but calculated to mislead the young and unwary. The South is already flooded with periodicals of this character, and many of our Southern contemporaries have been instrumental in this demoralizing inundation. We are Southern in all our feelings and principles, and we are opposed to an indiscriminate introduction, recommendation, and consequent circulation of many Northern periodicals so liberally patronized in the South, notwithstanding, we are incapable of judging, approving, or condemning according to the latitude of literary enterprise. In the main, we are opposed to Northern teachers, preachers, pedlars especially, and to Northern abolitionists, under-ground rail road operators, and incendiaries hired and sent out to conflagrate the South. Ah! if we had the disposition of these devils incarnate, they would not live to vote for Abe Lincoln in November next. But we must return to the subject of notice—we have before us two little volumes, which we desire to introduce to the house-keepers and house-wives of North Carolina: 1st, the Patient's and Physician's Aid; or, How to Preserve Health; What to do in sudden attacks, or, until the Doctor comes; and how to profit by his directions when given; by E. M. Hunt, A. M., M. D., author of Physician's Counsel, &c. This work should be in the hands of every head of a family. We are no doctor, but having raised a large family of children, we are not entirely ignorant of Therapeutics, and although we have two sons belonging to this honorable and useful profession, we cheerfully recommend this work to the public, believing that every honest physician would like to see it in the hands of his patients. 2d. "Our Farm of four acres." This is the production of an educated and intelligent English lady, and every house-wife in Carolina would do well to order it forthwith. For sale by Pomeroy, Raleigh, N. C. We cannot omit to notice the June number of the Plantation, a quarterly, edited by J. A. Turner, Eatonton, Ga. It is a work of a mixed character, literary, scientific, political and agricultural. In our opinion it is entitled to the patronage of the whole South, and we give to no work of the kind a preference over it. Price, $5 per annum.—Ed.

For the N. C. Planter.

Plowing in Crops.

Mr. Editor:—It is a common practice, I believe, with many farmers in the Eastern part of our State, to burn their corn-stalks, cotton-stalks, and even pea-vines, when the latter, as is often the case, to expedite the gathering, are pulled up by hands or cut with sharp hoes and strong, short scythes. Now, I conceive this to be decidedly wrong, for they can certainly be converted into articles of food and clothing. It in fact is wasting an amount of corn, cotton, and peas, precisely equal to the increased quantity that would be returned, by adopting a neat and judicious system of plowing them in. That these stalks and vines can be rendered available to the purposes of the agriculturist, in enhancing the value of ensuing crops, there is not the least shadow of a doubt. Numerous facts deduced from observation, experience, and chemical philosophy, bear strongly in favor of this position. Our magnificent and gigantic forest trees are sustained chiefly by the geine or humus, which results from the putrefactive decomposition of their leaves and twigs. The frequent removal of these in yards and groves, without a supply of some other fertilizing substance, proves highly injurious, as experience has most amply demonstrated. The tall, rank grasses of the Western prairies is subject to annual decay, and is restored to the earth in the condition of dark, rich mould, to constitute a necessary ingredient to perpetuate future generations of healthy and vigorous plants. The people of Flanders frequently plant trees, that their falling leaves may, in the process of time, enrich the soil. They are justly ranked among the best cultivators in the world; from them the English received their first lessons in an improved husbandry.

Again, competent judges say that branches cut from the vine (*v. vinifera*) afford an excellent manure for vineyards, causing them to grow luxuriantly, and to produce abundantly sweet and delicious fruit. If this be true in regard to one plant, why not, reasoning upon a similar principle, a *posteriori*, apply it to another? If beautiful and flourishing vineyards, richly laden with grapes of superior quality, both as to taste and flavor, can be maintained for a long series of years, by a simple treatment of this kind, is it not reasonable, even from *analogy*, to suppose, that other forms of vegetative life can be sustained in the same way?

According to an analysis of Prof. Emmons, given in his geological survey of the State, these stalks and vines contain no inconsiderable proportion of potash, soda, lime, phosphates of lime and magnesia, fertilizing elements peculiarly adapted to the growth of cereals. He says that they should not be destroyed. To return them properly to the soil, in a nice workmanship-like manner, requires, it is true, more labor than to burn or to remove them to the barn yard. But, as this plan of their disposal increases the productive powers of the land and preserves it, especially if stiff, in fine condition for succeeding crops, it will repay for any little extra cost or labor expended in this way. Rather than burn them it would be preferable to haul them to the lot, or to some convenient spot outside the field, and mix with pond mud.

Another argument bearing upon the subject under consideration may be easily adduced, by reverting to the fact, that green manure not only attracted the attention of cultivators at an early period, but are now in many countries greatly valued as ameliorating crops, the intelligent agriculturist everywhere being convinced of their utility. They were recommended by ancient writers of high authority for the times in which they lived. Kenopton, a Grecian historian of eminence, advised his countrymen to raise crops of an annual leguminous plant called lupin, to be subjected to the plough, for these he says, "enrich the soil as much as dung." The plants usually selected for this purpose are such as have broad leaves, long, tapering roots, drawing many elements essential to their growth, from the air and great depths below the surface of the earth. In the United States the red clover is preferred at the North, and the pea is the favorite with the intelligent planters at the South. Now, I presume that no practical, successful cultivator of the soil will deny the excellent effects produced by such crops, especially when applied to render *immediate assistance to plants* in a *growing*, or soon to be in a *growing state*. Indeed, I have heard farmers zealously advocate their value—farmers who think it not only a present waste of time, but a serious drawback, in several particulars, to future operations, to bury them after having been suffered to *mature* and *perish*.

With all due deference to the advocates of such a notion, we would respectfully and very briefly inquire, are they right or wrong? Does their opinion accord either with *sound reason* or *certain practical well established results*, obtained through processes designedly instituted to test the point? Can such a doctrine be maintained by reference to *chemical science?* Conclusions derived from mere conjecture are usually worthless. It is exactness that gives value to experience, and without it no one ought to have much confidence in himself, nor attempt to give counsel to others. Precision and accuracy, as far as the practical affairs of life are concerned, should be the aim of all. Correct knowledge is not only an individual but a public benefit; besides it confers on its possessors substantial satisfaction.

We have already alluded to facts throwing much light upon our subject; but it is not our intention to essay an elaborate article on a topic that may seem at first view of little importance. A few more lines and we design to close our desultory remarks.

Actual experiments prove beyond a question, that the best time for turning down clover is when in its decline, and not when in full vigor or blossom, or in the "rankest and most succulent stage of its growth," as some have maintained. And here the experiments of the practical farmer perfectly agrees with the valuable facts of the skillful chemist; because, if intended for spring crops, for instance, of Indian corn, its juices could be of no possible benefit, and why? The vinous and acetous fermentations would convert them into gases and alcohol, which would be dissipated by the air and washed away by the rains, long before the time of planting arrives. According to Dr. Dana, a large portion of other substances besides the sugar, starch and gum of the plant is lost, by turning it in green, by the *destructive fermentation*

Branches pruned from the common grape vine in August or September, and covered with a few inches of earth, leave not a visible vestige after the space of six weeks. May not this fact be accounted for by the theory of the scientific gentleman, whose name we have just had occasion to mention. The only part then of the green plant that would be left, is the mould or humus, the remains of decomposed organic matter, and the quantity of this "brownish-black, powdery moss," as it has been called, is always less from the green than from the mature or even dry plant. Indeed, it is now the prevailing opinion among the most enlightened agriculturists, that it is inexpedient to turn down when in full bloom heavy crops of either clover, peas, or buckwheat; to the latter perhaps there would be the least objection. Serious injury to the land, causing it in common phraseology to sour, is the inevitable result, unless the operation is performed under the most favorable circumstances.

At some future period we would like to resume the subject, and to present our method of leaving as much as possible of our crop to decay upon the field, and the good results obtained from so doing, if, Mr. Editor, it be agreeable to your readers. We have already taxed you too severely upon a topic that may not seem of much importance, but, plain farmer as I am, loving my profession dearly, I feel a deep and lively interest in everything relating to the cultivation of the soil. Our people display too little concern about these scientific principles taught by vegetable chemistry, which, if studied and applied in practice, would insure success in this the most important of all pursuits. A deep rooted prejudice exists against book-farming, and many look upon all agricultural improvements as wanton innovations upon the good old systems of their ancestors; they prefer to follow the beaten track, and to continue like the silly Irishman, to attach the plow to the horses' tail. It is high time for us to awake, to become a reading as well as a working people. But are we not a reading people? Yes. The foul and exciting romance is grudily devoured, and from it we get a "mouthful of froth," that intoxicates the mind as alcohol does the body, the latter is a physical, the former a mental poison. We should read agricultural works more, novels and politics less.

CATO.

For the N. C. Planter.

Mr. Editor:—Several farmers in this vicinity applied Reeses' Manipulated Guano to their cotton last spring. I used but a small quantity; some of my neighbors as much as 2 to 5 tons, and there is a complaint from each one who used it, with whom I have conversed on the subject, that they have received no benefit from it. The cotton in each case being poorer where the guano was applied than where any other manure was used, and even poorer than where no manure was used.—Our plan of applying it was to mark with a shallow furrow, spread the guano in the furrow about 160 pounds to the acre, (some used 200 pounds,) and bed on it. Some used the new Cotton Planter, others opened the beds, dropped the seed and covered in the ordinary way. The *stand* was generally good, but where the guano was applied, the cotton failed to grow, and much of it died out.

Many of the most successful planters in Edgecombe and Martin, have used this guano with success, heretofore, and some of them will be doing a service by stating their manner of applying the guano, and the results. Was the fault in our manner of applying the guano? or, was it in the quality of the article sent to us?

I may be permitted to express my high appreciation of your valuable paper. I feel that in every number I receive I am well paid for a years' subscription.

Plymouth, July, 1860. S.

We can only add, that the guano was properly applied; the result proves that it was entirely worthless. We have had no experience in the use of Reese's Manipulated Guano, but we verily believe that a majority of these guanos is largely adulterated. We would strongly recommend to our correspondent and the farmers of the State generally, Ruffin's' Phospor-Guano, Richmond, Va. This preparation contains 8 per cent. ammonia, and from 40 to 50 per cent. bone phosphate lime—price, $50 per ton of 2000 lbs. We make this recommendation upon the known reputation of the manufacturer.—Ed.

From the U. S. Agricultural Reports for 1859.

Construction of Lightning Rods.

The rod should be of sufficient size to transmit freely the largest discharge which experience has shown to fall on a building. A rod of three-fourths of an inch of round fron is generally considered sufficient for this purpose, since a conductor of this capacity has in no case been found to have been fused by a discharge from the clouds. There is no objection on the score of electrical action to using a larger bar, or to the hollow weight of metal in the form of a hollow cylinder; indeed every increase of diameter lessens the resistance to conduction, and the tendency to give off laterali sparks.

Lightning conductors are frequently constructed in this country with points projected at intervals of two or three feet through their whole length; this plan has been adopted from some erroneous idea in regard to the action of the conductor, and of the proper application of points. The essential office of the conductor is to receive the discharge from the cloud, and to transmit it with the least possible resistance, silently and innoxiously to the great body of the earth below, and anything which militates against these requisites must be prejudicial. Now, in the passage of the electricity through a conductor, it retains its repulsive energy, and hence each point along the rod in succession becomes highly charged, and tends to give off a spark to bodies in the neighborhood.—Besides this, the irregularity in the motion of the electricity which is thus produced, must on mechanical principles interfere with its free transmission. The points along the course of the rod should therefore be omitted, since they can do no possible good and may produce injury.

We may conclude what we have said in regard to lightening rods by the following summary directions for constructing and erecting them:

1st. The rod should consist of round iron, of not less than three-fourths of an inch in diameter. A larger size is preferable to a smaller one. Iron is preferred because it can be readily procured, is cheap, a sufficiently good conductor, and when of the size mentioned cannot be melted by a discharge from the clouds.

2d. It should be, through its whole length, in perfect metallic continuity; as many pieces should be joined together by welding, as practicable, and when other joinings are unavoidable, they should be made by screwing the parts firmly together by a coupling ferule, care being taken to make the upper connection of the latter with the rod water-tight, by cement or paint.

3d. To secure it from rust, the rod should be covered with a coating of black paint.

4th. It should be terminated above, with a single point, the cone of which should not be too acute, and to preserve it from the weather as well as to prevent melting, it should be encased with platinum, formed by soldering in a plate of this metal, not less than a twentieth of an inch in thickness, into the form of a hollow cone.—Usually the cone of platinum, for convenience, is first attached to a brass socket which is secured on the top of the rod, and to this plan there is no objection.—The platinum casing, however, is frequently made thin, and the cone so slender, in order to save metal, that the point is melted by a powerful discharge.

5th. The shorter and more direct the rod is in its course to the earth the better. Acute angles made by bending in the rod and projecting points from it along its course should be avoided.

6th. It should be fastened to the house by iron eyes, and may be insulated by cylinders of glass. We do not think the latter, however, of much importance, since they soon become wet by water, and in case of a heavy discharge are burst asunder.

7th. The rod should be connected with the earth in the most perfect manner possible, and in cities nothing is better for this purpose than to unite it in good metallic contact with the gas mains or large water pipes in the streets; and such a connection is absolutely necessary if the gas or water pipes are in use within the house. This connection can be made by soldering to the end of the rod a strip of copper, which, after being wrapped several times around the pipe, is permanently attached to it. Where a connection with the ground cannot be formed in this way, the rod should terminate, if possible, in a well always containing water, and where this arrangement is not practicable, it should terminate in a plate of iron or some other metal buried in the moist ground.—It should, before it descends to the earth, be bent so as to pass off nearly perpendicular to the side of the house, and be buried in a trench surrounded with powdered charcoal.

8th. The rod should be placed, in preference, on the west side of the house, in this latitude, and especially on the chimney, from which a current of heated air ascends during the summer season.

9th. In case of small a house, a single rod may suffice, provided its point be sufficiently high above the roof, the rule being observed, that its elevation should be at least half of the distance to which its protection is expected to extend. It is safer, however, particularly in modern houses, in which a large amount of iron enters into the construction, to make the distance between the two rods less than this rule would indicate, rather than more. Indeed we see no objection to indefinite multiplication of rods to a house, provided they are all properly connected with the ground and with each other. A building entirely enclosed, as it were, in a case of iron rods connected with the earth, would be safe from the direct action of the lightning.

10th. When a house is covered by a metalic roof, the latter should be united in good metalic connection, with the lightning rods: and in this case the perpendicular pipes conveying the water from the gutters at the eaves may be made to act the part of rods by soldering strips of copper to the metal roof and pipes above, and connecting them with the earth by plates of metal united by similar strips of copper to their lower ends, or better with the gas or water pipes of the city. In this case, however, the chimneys would be unprotected, and copper lightning rods solderated to the roof, and rising a few feet above the chimneys, would suffice to receive the discharge. We say soldered to the roof, because if the contact was not very perfect, a greater intensity of action would take place at this point, and the metal might be burnt through by the discharge, particularly if it were thin.

11th. As a general rule, large masses of metal within the building, particularly those which have a perpendicular elevation, ought to be connected with the rod. The main portion of the great building erected for the world's exhibition at Paris, is entirely surrounded by a rod of iron, from which rises at intervals a series of lightning conductors, the whole system being connected with the earth by means of four wells, one at each corner of the edifice.

The foregoing rules may serve as general guides for the erection of lightning rods on ordinary buildings, but for the protection of a large complete structure, consisting of several parts, a special survey should be made, and the best form of protection devised which the peculiar circumstances of the case will admit.

Various patents have been obtained in this country for improved lightning conducters, but as a general rule such improvements are of minor importance.

An improvement in the lightning rod which was recommended by the French Academy in 1823, would presuppose some important discoveries in electricity having a bearing on the subject; but after the lapse of thirty years, the same Academy being called upon to consider the protection of the new additions to the Louvre, finds nothing material to change in the principles of the instructions at first given.

Important to Farmers.

Mr. Editor:—How strange it is that some farmers, with the yearly returns affecting them so seriously, and resulting in such immense losses, pay so little attention to their seed wheat.

Each year they sow their wheat just as they happen to have it, with all the smut, cheat, spelt, faulty and shriveled grains, and other abominations that produce mean flour and low prices, and the product of each year is apt to be a little worse than that of the preceding.

I have thought this a fit occasion to call their attention to this matter, while the commercial reports are reading after this fashion:

"Good to prime lots of red and white wheat bring readily $1 30 to $1 40, while badly smutted and damp lots are dull of sale from $1 to $1 20."

Now, here is a difference in prices of, say, 25 cents per bushel—a difference that ought to induce farmers to give it their attention. If a farmer raises 100 bushels, it amounts to $25; if five hundred, $125; if a thousand, to $250—enough money to buy a good horse or to fertilize a small plantation.

The remedy is cheap and simple; a lot of tubs or barrels and a plentiful supply of clean water being all that is necessary.

Let the wheat be put in, washed, stirred and rubbed between the hands, and all that floats, skimmed off and rejected; change the water and repeat the process, until no more rises to the surface, then sow it, and the product will be good.

A farmer, whose crops of several thousand bushels a year I have ground for the last five year, says that he pursues this course, and he has yet to send me the first grain of smut.

Women and children, and such hands as are of little or no service in the field, can prepare the wheat as fast as it is needed to be sown.

Millers detest filthy wheat. We cannot make good flour from it, nor pay much money for it, and it is useless for people to expect us to do either.

Persons whose wheat has very much deteriorated, had better sell out entirely, buy a new and good stock, and by proper care maintain it so. Very respectfully yours,

MILLER.

We would advise the wheat growers in this State, not be in a hurry in getting their wheat in market. The wheat crop in all the States, south of North Carolina, has been almost an entire failure. In North Carolina, Virginia, Maryland, and Delaware, there will not be more than a two-third crop of wheat, and a falling off in the corn crop. In Pennsylvania and New York, the wheat crop is good. There is also a fine crop of wheat in all the West, but not enough to supply the deficiency in the South. Wherever there has been a failure or deficiency in the wheat crop, there has also been a corresponding falling off in the corn crop. From the last foreign advices, we learn that there will not be an average crop in Europe—this deficiency must be supplied. In 1858 and '59, France furnished England 14½ millions barrels of flour. This year the harvest in France and the Battie will fall short, and cannot supply the usual quantity to England, and she must look elsewhere for her quantum sufficit—and where, but to the United States? Wheat, then, in our opinion must advance.—Ed.

The article which follows has not before come to our notice. It contains valuable suggestions, and we publish it for the future benefit of our cotton planting readers. It is from the *American Cotton Planter*:

Improved Cotton and Culture.

Dear Sir.—By to-day's mail I send you the sample of cotton I mentioned in my last. You may remember I mentioned to you several years ago, that I was experimenting on some cotton to improve its productiveness and staple. I have continued the experiments until I am satisfied I have superior cotton, both in productiveness and staple. Last season I took one acre hill side sandy land, (you very well know what my land is,) and in February I broke it up with a scooter. In March I subsoiled it; early in April I broke it again, and checked it off three feet by four. In each cross check, I deposited a table spoonful of American guano, which took about one thousand and eighty pounds to the acre. This guano I covered with earth, and over it dropped the cotton seed.—When the cotton was up two to four inches high, I run through it with the scooter plow, and thinned out the cotton to one stalk to a hill. This was all the plowing the crop ever had—all after the culture was given with the horse hoe. As the land was checked, I run the horse hoe both ways, which kept the ground perfectly level, and kept down all the grass and weeds. I was laughed at by many an old planter for attempting to cultivate cotton on a level; but when the weed began to bloom and boll, the laughter was not loud, but rather sober. There were just *thirty-four hundred stalks* on the acre, which would make it almost average one pound of cotton to the stalk. Many of the stalks are over seven feet high, and matured one hundred bolls. I regret that I had no means of weighing the seed cotton. I took it to a neighbor's gin, which was one of the old fashioned kind, and got from the acre a bale of six hundred pounds of such cotton as the sample sent you. I am satisfied the gin has not done the staple justice. I shall plant of it this year fifty acres, and if we have a favorable growing year, I shall make one bale to the acre; when I shall endeavor to select one of the most approved gins for ginning cotton with a staple longer than the ordinary uplands. I have sent samples of this cotton to New Orleans, Charleston and Montgomery. The New Orleans factors class it as *Fancy*, and say it will bring sixteen cents in that market. The Montgomery factors say it will bring three cents more, per pound, than the best cottons brought to their market. The bale I made goes to Providence, R. I., to be manufactured into spool thread, which the manufacturers say common uplands will not do.

I am satisfied from my observation, that one-half the diseases of crops are from injudicious culture. I do not believe drought will fire corn, or wet rust cotton, if properly cultivated. Thorough, deep culture before the seed is put in the ground, and the crop is more than half made. Then with a level surface culture afterwards, whether the season be wet or dry, a remunerating crop will be the reward. I am aware that many old planters will say my notions are based upon Gardening principles. Admit it; thus should it be with every culture. I have demonstrated to the planting world, that I make two bushels of corn where but one could be got before; and should I live another year, I will demonstrate that I make two bales of cotton where but one could be got before, and this with less labor than good planters ordinarily bestow. And now, my dear Doctor, if we can get one bale of such cotton as the sample sent you, from such soil as you know mine is, who will care to move into the unhealthy regions of the South-west to increase their production of cotton?

Very truly yours, C. A. P.

Columbus, Ga., 1860.

Use of the Blue Stone as a Remedy Against Smut.

Mr. J. B. Coleman, near Cynthina, Ky., has used the Blue Stone remedy satisfactorily. He takes one pound of Blue Stone to every ten bushels of wheat sown, soaking it from one to three hours, sowing directly out of the water. Where this was done he had no smut, while a piece sown beside it, to which the remedy had not been applied, was badly smutted. Reading the article on Smut in wheat led him to adopt the plan ever since. He and his two sons do nearly all the work of the farm. Thirty acres of old worn-out land, obtained of his old fogy neighbor, he had already nearly redeemed by deep plowing and manure, the first crop, last season, nearly paying for the land. The oak lands, about three miles back of Cynthiana, where well cultivated, are excellent for cereals; they stand drouth better than the blue grass lands. Others in the neighborhood have taken worn-out lands, and are making them yield superior crops, and, using the above remedy, are free from rust.—*Cincinnatus.*

Benefit of Using Phosphate of Lime upon Poor Land.

One day last week, we visited the farm of Mr. T. H. McRorie, a mile or two from town, on purpose to see what a fine crop of wheat, oats and corn, *poor land* would produce when aided by a little phosphate of lime as a fertilizer or stimulant. Mr. McRorie had enclosed and cultivated some exhausted old-fields—the poorest—on purpose to test the benefit of this fertilizer.—The wheat and oats which have been harvested, are of the best; no finer, we will venture to say have been grown in any locality this year, in any Southern State. The corn, which was planted also upon poor land, is the most promising.

Let our farmers profit by this piece of information, those who have poor land, and supply themselves with phosphate of lime for the next crop. Now is the time when it should be purchased—because it can be had cheaper than at any other time—the freight being less.

We understand that Mr. McRorie designs keeping a supply of the article at his store, which will be sold at a very moderate price to the farmers in the county and others who may desire to raise good crops upon poor lands. Our farmers need no more remove from their comfortable homes to new countries; their old worn-out lands—the cast-off old fields—will produce equal to the rich praries of the west under the application of small quantities of phosphate of lime.—*Iredell Express.*

For the N. C. Planter.

Important Discovery.

FOR THE CURE OF HOG CHOLERA --, *Directions.*—Give of Camphor, dissolved in common Rum or Whiskey, one and a half table spoonful; afterwards for every hour give them sweet milk for about five hours, then give them milk pot-liquor, mixed. For the same length of time then give them meal and water, and in a day or two they will be able to eat for themselves. This remedy I have tried with success on my hogs, when they were not able to eat or walk. Very Respectfully,

JOHN GARDNER, *Sr.*
Johnson's Mills, August, 1860.

* * *

THANKS! to Dr. S. Devane, of Wayne county, for $10 and a club of ten subscribers to the Planter. Dr. D. remarks in his note accompanying the money,—"I am now satisfied that the North Carolina Planter must be sustained, and that it will in a little time root out every other Agricultural journal from among our people.—The information communicated through its pages is solid, practical and reliable. If some men of influence among us would attend our County Fairs, they could in all probability procure several hundred subscribers, with the proper exertions."

We thank Dr. Devane for his *substantial* aid, and his words of encouragement. We trust many others will do likewise. And we sincerely hope that some friends will attend the Fairs and solicit subscribers.—We are willing to allow fair compensation for all such services rendered.

* * *

Scorbutic diseases are the parent stock from which arises a large proportion of the fatal maladies that afflict mankind. They are as it were a species of the potato rot in the human constitution, which undermines and corrupts all the sources of it vitality and hasten its decay. They are the germ from which springs Consumption, Rheumatism, Heart Disease, Liver Complaints, and Eruptive Diseases which will be recognized as among those most fatal and destructive to the races of men. So dreadful are its consequences to human life, that it is hardly possible to over estimate the importance of actual, reliable remedy, that can sweep out this Scrofulous contamination. We know then we shall proclaim welcome news to our readers, of one from such a quarter as will leave little doubt of its efficacy—and still more welcome, when we tell them that it surely does accomplish the end desired. We mean Ayer's Sarsaparilla, and it is certainly worthy the attention of those who are afflicted with Scrofula or Scrofulous complaints.—*Register, Albany, N. Y.*

Horticulture.

Cultivation of Fruit Trees—Saving the Fruit.

The distance at which apple trees should be planted in an orchard, depends upon the mode in which they are to be treated. When it is desired finally to cover and devote the whole ground to the trees, thirty feet apart is the proper interval, but where the farmer wishes to keep the land between the trees in grain and grass, fifty feet is not too great a distance in strong soils. Forty feet apart, however, is the usual distance at which the trees are planted in orchards.

"Before transplanting, the ground should be well prepared for the trees, and vigorous, healthy young trees should be selected from the nurseries. As there is a great difference in the natural growth, shape, and size of the various sorts of apple trees, those of the same kinds should be planted in the rows together, or near each other; this will not only facilitate culture, and gathering the fruit, but will add to the neatness and orderly appearance of the orchard.

"*It is an indispensable requisite, in all young orchards, to keep the ground mellow and loose by cultivation*; at least, for the first few years, until the trees are well established. Indeed, two adjoining orchards, one planted and kept in grass, and the other plowed for the first five years, there will be an incredible difference in favor of the latter. Not only will these trees show rich dark luxuriant foliage, and clean, smooth stems, while those neglected will have a starved and sickly look, but the size of the trees in the cultivated orchard will be treble that of the others at the end of this time, and a tree in one will be ready to bear an abundant crop, before the other has commenced yielding a peck of good fruit, Fallow crops are the best for orchards, potatoes, beets, carrots, bush beans, and the like; but whatever crops may be grown, it should constantly be borne in mind that the roots of the tree require the sole occupancy of the ground so far as they extend, and therefore that an area of more than the diameter of the head of the tree should be kept clean of crops, weeds, and grass.

"GATHERING AND KEEPING THE FRUIT. In order to secure soundness and preserva-ion, it is indispensably necessary that the ruit should be gathered by hand. For winter fruit the gathering is delayed as ong as possible, avoiding severe frosts, and he most successful practice with our ex-ensive orchardists is to place the good ruit directly, in a careful manner, in new, ight flour barrels as soon as gathered from he tree. These barrels should be gently haken while filling, and the head closely ressed in; they are then placed in a cool, hady exposure under a shed open to the ir, or on the north side of a building, rotected by coverings of boards over the op, where they remain for a fortnight, or ntil the cold becomes too severe, when hey are carefully transferred to a cool, dry ellar, in which air can be admitted oc-asionally in bright weather.

"A cellar for this purpose should be ug in dry, gravelly, or sandy soil, with, possible, a slope to the north; or, at any ate, with openings on the north side for he admission of air very rarely in weather ot excessively cold. Here the barrels hould be placed on tiers *on their sides*, and he cellar should be kept as dark as pos-ble. In such a cellar, one of the largest pple growers in Dutchess county is able keep the Greening apple, which, in the uit room, usually decays in January, un-l the first of April, in the freshest and best condition. Some persons place a yer of clean rye straw between every yer of apples, when packing them in bar-ls.

PEARS.—The best soil for the pear is a rong loam of moderate depth, on a dry bsoil. The pear will, indeed, adapt it-lf to as great variety of soils as any fruit tree; but, in unfavorable soils, it is more liable to suffer from disease than any other. Soils that are damp during any considerable pertion of the year, are entirely unfit for the pear tree; and soils that are over-rich and deep, like some of the western alluvials, force the tree into such over luxuriant growth, that its wood does not ripen well, and is liable to be killed by winter blight. The remedy, in this case, consists in planting the trees on slightly raised hillocks, say eight inches above the level of the surface, and using lime as manure.—Soils that are too light, on the other hand, may be improved by trenching, if the subsoil is heavier, or by top-dressing with heavy muck and river mud, if it is not.

"In a climate rather cold for the pear, or on a cold soil, it is advantageous to plant on a southern slope; but in the middle States, in warm soils, we do not consider a decidedly southern exposure so good as other rather cooler ones.

"The pear succeeds so well as an open standard, and requires so little care in pruning—less, indeed, in the latter respect, than any other fruit tree, that training is seldom thought of, except in the gardens of the curious or skillful.

"In orchard culture, the pear is usually planted about thirty feet distant each way; in fruit gardens, where the heads are somewhat kept in by pruning, twenty feet is considered sufficient by many.

"Pear trees, in a bearing state, where the growth is no longer luxuriant, should have, every autumn, a moderate top-dressing of manure, to keep them in good condition. This, as it promotes steady and regular growth, is far preferable to occasional heavy manuring, which has a tendency to produce the worst form of blight to which the tree is subject.

"The pear not being very abundantly supplied with fibrous roots, should never be transplanted, of large size, from the nursery. Small, thrifty plants, five or six feet high, are much to be preferred.

"GATHERING AND KEEPING THE FRUIT. The pear is a peculiar fruit in one respect, which should always be kept in mind, viz: *that most varieties are much finer in flavor if picked from the tree, and ripened in the house*, than if allowed to become fully matured on the tree. There are a few exceptions to this rule, but they are very few.—

And, on the other hand, we know a great many varieties which are only second or third rate, when ripened on the tree, but possess the highest and richest flavor if gathered at the proper time, and allowed to mature in the house. The proper season is easily known; first, by the ripening of a few full grown, but worm-eaten specimens, which fall soonest from the tree; and secondly, by the change of color, and the readiness of the stalk to part from its branch, on gently raising the fruit. The fruit should then be gathered—or so much of the crop as appears sufficiently matured, and spread out on shelves in the fruit room or upon the floor of the garret. Here it it will gradually assume its full color, and become deliciously melting and luscious.—Many sorts which, ripened in the sun and open air, are rather dry, when ripened within doors, are most abundantly melting and juicy. They will also last for a considerable longer period, if ripened in this way—maturing gradually as wanted for use—and being thus beyond the risk of loss or injury by violent storms or high winds.

"Winter dessert pears should be allowed to hang on the tree as long as possible, until the nights become frosty. They should then be wrapped separately in paper, packed in kegs, barrels, or small boxes, and placed in a cool, dry room, free from frost. Some varieties, as the D'Aremberg, will ripen finally with no other care than placing them in barrels in the cellar, like apples. But most kinds of the finer winter dessert pears should be brought into a warm apartment for a couple of weeks before their usual season of maturity. They should be kept covered, to prevent shriveling. Many sorts that are comparatively tough, if ripened in a cold apartment, become very melting, buttery and juicy, when allowed to mature in a room kept at the temperature of sixty or seventy degrees."—*Downing.*

How to Prevent the Loss of Fruit by Late Frosts.

A writer in the *Southern Rural Magazine*, learns, from an experienced orchardist, that the time of blossoming of any fruit tree may be retarded until all danger of injury from the late frost is over, by adopting the following treatment:

"In the middle of winter, when the ground is most severly frozen, place a large pile of wet straw or leaves around the roots, letting it extend some distance in every direction, so as to cover the extended roots that approach the surface of the earth. Cover this pile with planks or boards, so that no rain fall upon the pile. Let this cover remain until all danger from frost has passed, then remove the cover and the straw, and look for a splendid crop to follow soon.

"The *rationale* is simply this: the frozen earth will not thaw till very late in the spring, if the pile remain. And while the earth is frozen the tree cannot bloom. But when all danger is past, you can remove the covering, and the tree blooms forth speedily."

Where the orchard is not an extensive one, the process of ensuring a supply of fruit, as indicated above, will be found, in general, quite effectual. In the only instance which has come within our experience, its success was unquestionable.—As it happened to be wholly involuntary, on our part, we may here state it for the benefit of others. In cleaning out an old wood yard, late in the fall, preparatory to storing away our customary supply of winter fuel, we had the fine chips, and dirt and refuse matter, that always accumulate in such places, carted to the orchard—a couple of cart loads being dumped against and around the apple tree, that scarcely ever bore any fruit which was from the low situation in which it had been originally planted peculiary liable to suffer from late frosts. Designing to break up the soil of the orchard, for the purpose of cropping it and re-seeding to grass, we let the pile remain where it was until late in the spring. It was not until the ground was comparatively warm that the deposit of refuse stuff was disturbed. The tree blossomed later than usual, and for the first time for several years, bore an abundant crop of fruit; but probably from the absence of similar protection, in subsequent seasons, degenerated into its old habits. The frequent loss of the peach crop, of late years, may stimulate some of our readers to test the value of the above suggestion. If, however, they conclude to do so, they must take care that the covering does not afford a shelter to the peach grub, and thus do more damage in one way than it affords security in anoher. To obviate this result, we should recommend that, late in the fall, the earth should be drawn away from the stem of the tree, and half a peck of wood ashes, or the same quantity of unslacked lime—the ashes are preferable—should be placed in the hollow which has thus been formed. Over this, throw the refuse stuff which is to protect the tree from late spring frosts It is by no means necessary, however, that the "pile of wet straw, or leaves," should be covered with planks or boards, which would be rather an expensive process.—The same object can be effected by increasing, somewhat, the thickness of the covering material; but care, in all cases, should be taken that the covering extend *to a distance from the stem of the tree commensurate with the extent of its roots* and that it shall be gradually removed with the returning warmth of spring.—To take it away wholly, and at once, would, in all probability, do serious injury to the tree, by causing too sudden and too free a flow of sap, to the manifest danger of distending the sap vessels overmuch. With these precautions, we have no doubt whatever that the period of blossoming can be retarded, and the fruit saved. Where there are trees of choice fruit, it would be well worth the trouble to secure them, in this manner, from the effects of late frosts. Upon a large scale, the quantity of covering required would render it impracticable. There is, however, one other consideration to be taken into account. If the work should be indifferently done, and if, after all, the protection should not prove to have been perfect, the distribution broadcast of the rough vegetable fibre, which has inadequately performed the office required of it, will serve to fertilize a considerable portion of the adjacent soil, so that the labour and time will not be entioely lost.—*Rural Register.*

N. B. Phosphate of lime consists of 50 parts phosphoric acid, and 47 parts of lime,

◆

The rich odors, so grateful to the senses hich float in our atmosphere, are tiny, oms, escaping from the downy petals of he rose or lilly, which blossom at our feet. weet emblems are those odors—floating ound us all unseen—of the influence of ly spoken words.

For the Ladies.

FLORICULTURE.

Greenhouse Plants, intended for fall and winter blooming, should be kept growing by means of frequent shifting into larger pots, taking care that the pot into which they are shifted is not more than two sizes larger than the one it occupied before. We allude now principally to the soft wooded plants. If they are grown under glass, care must be observed that they are kept moist and well shaded from the sun; raise the sashes removed at night, to give them the benefit of the moist night air, which is of great benefit to them; they should again be shaded as soon as necessary from the direct rays of the sun. A little observation will soon inform the Amateur when this is necessary.

Geraniums and Pelargoniums, that have been cut back and pushed forth young shoots, should be removed from the pots in which they have bloomed the past season, the earth shaken from the roots, and re-potted into smaller sized pots; after which they may be kept in a close frame for a few days, to induce them to put forth new roots. The old roots should be cut back at the time of potting. Keep them moist by sprinkling over-head, each morning or night. The fancy kinds are liable to damp off if kept too wet.

The following half dozen varieties Pelargoniums, we are sure our lady readers will be charmed with, viz: Village Maid, Vandee, Jenny Lind, Bridegroom, Hebe, and Mazeppa, Superb Achimenes. This lovely tribe should now be in full bloom. Do not let them suffer for water, as the bloom is greatly prolonged by attention to this particular.

Primula Sinerisis. This little favorite will now need some attention, in the way of repotting, to prepare it for winter blooming; needs careful watering; if too much water is administered, they damp off very suddenly.

Camelias.—These having now set, the buds to open the ensuing winter, must not suffer for water, or the buds will certainly fall off. This alone is the cause of a great deal of disappointment to Amateurs in the blooming of the Camelia.

THE FLOWER GARDEN, now will be in its greatest beauty. The oppressive heat has partially passed away, for the present Summer; now, more enjoyment may be derived in the contemplations of the Flower Garden than at any previous time.—This year we have looked in vain for striking contracts, and harmony of colors in the arrangement of Flower Gardens The present season, in only one instance, have we seen this carried out. The Flowers themselves, we understand, will shortly take the matter in hand. We hold ourself in readiness as Reporter for the occasion.

DAHLIAS.—Thin and tie out the branches; occasional doses of liquid manure will be found beneficial to them. Thin out the flowers, if size and fine form is an object.

ROSES PERPETUAL, that have received a summer pruning, will now repay all the trouble taken with them, as in many instances they will produce a profusion of flowers. W. H. HAMILTON.

Culinary Department.

CELERY should have frequent earthings and be never worked when it is the least damp; we mean when the leaves are damp; if it is worked when damp or wet, it will rot rapidly. In many instances Amateurs are ignorant of the cause, though we do not mean to say this is the cause of the rotting of all Celery; but we do say, and know this to be the cause of a great deal of it. As this is the month Celery grows most rapid, we have thought proper to draw the attention of our readers to the subject.

CABBAGE.—Seed sown about the middle of the present month, and planted in the usual way early in November, will produce earlier and better Cabbage than plants raised in hot beds in early spring. It is entirely a mistake, to suppose that plants will not stand through the winter here.—Cabbage will rot, but not young plants planted in the usual way. Early kinds are best for the purpose. The kinds we have found to succeed best, are Early York, Flat Dutch, and Drum Head; we speak from experience.

GREEN CURLED KALE, may now be sown for winter use; a supply of this will we found very useful to any family, large or small.

STAWBERRIES.—Plantations may now be made. The ground should be trenched or stirred eighteen inches deep, and made rich with thoroughly decomposed stable manure. The rows two feet apart, the plants one foot apart in the rows. Should be mulched after planting. The present is the best month to plant. Plant none but the best and most productive kinds.

W. H. HAMILTON.

☞ We should like to hear from our Correspondent, Cato, often.—ED. N. C. P.

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E WOULD CALL THE ATTENTION OF Guano Dealers, Planters and Farmers to elo which we have on hand and for sale at

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ich we claim to be superior to any Guano lizer ever imported or manufactured in ntry. This Guano is imported by WM. BB, of New York, from Jarvis' and Ba- lands, in the "South Pacific Ocean," and genuine and pure as imported. It has tisfactorily tested by many of our promi- armers, and analyzed by the most eminent pular Agricultural Chemists, and found to (as will be seen by our circulars) a large tage of

Phosphate of Lime and Phosphoric Acid

er animal organic matter, yiel ing ammo- ficient to produce immediate abundant esides substantially enriching the soil It freely used without danger of burning the plant by coming in contact with it, as is e wth some other fertilizers; retaining a egree of moisture it causes the plant to a healthy condition, and as experience ved

Free of Insects.

ers in any quantity (which will be prompt- ded to) or pamphlets containing full par of analyses and tests of farmers, y to

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, 28th 1860. 5--6m.

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or Land Drainage.

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Manufacturers, Baltimore, MD.
April, 1860. 4--6m

SCROFULA, OR KING'S EVIL,

is a constitutional disease, a corruption of the blood, by which this fluid becomes vitiated, weak, and poor. Being in the circulation, it pervades the whole body, and may burst out in disease on any part of it. No organ is free from its attacks, nor is there one which it may not destroy. The scrofulous taint is variously caused by mercurial disease, low living, disordered or unhealthly food, impure air, filth, and filthy habits, the depressing vices, and, above all, by the venerel infection. Whatever be its origin, it is hereditary in the constitution, descending "from parents to children unto the third and fourth generation; indeed, it seems to be the rod of Him who says, "I will visit the iniquities of the fathers upon their children."

Its effects commence by deposition from the blood of corrupt or ulcerous matter, which, in the lungs, liver, and internal organs, is termed tubercles; in the glands, swellings; and on the surface eruptions or sores. This foul corruption which genders in the blood, depresses the energies of life, so that scrofulous constitutions not only suffer from scrofulous complaints, but they have far less power to withstand the attacks of other diseases; consequently vast numbers perish by disorders which, although not scrofulous in their nature, are still rendered fatal by this taint in the system. Most of the consumption which decimates the human family has its origin directly in the scrofulous contamination; and many of the destructive diseases of the liver, kidneys, brain, and, indeed, of all the organs, arise from or are aggravated by the same cause,

One quarter of all our people are scrofulous: their persons are invaded by this lurking inflection and their health is undermined by it. To cleanse it from the system we must renovate the blood by an alterative medicine, and invigorate it by healthy food and exercise. Such a medicine we supply in

AYER'S

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monary organs that are incident to our clim
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J. D. McDowell

OCTOBER NUMBER, 1860.

NORTH CAROLINA PLANTER.

A MONTHLY

Hon [illegible] J McDowell

Southern Agricultural Journal:

DEVOTED TO

THE IMPROVEMENT OF SOUTHERN FARMING, HORTICULTURE,
FLORICULTURE, AND THE DOMESTIC AND MECHANIC ARTS.

JAMES M. JORDAN, AGRICULTURAL EDITOR.
JOHN W. WOODFIN, OF BUNCOMBE, ASSOCIATE EDITOR.
W. H. HAMILTON, FLORICULTURAL EDITOR.

A. M. GORMAN, Publisher, Raleigh, N. C.
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October, 1860, 10-

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it has accomplished astonishing cures.

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G. M. HICKS, M. R. PINNELL,
Franklin county, N. C., June 12, 1860

New Hill, Wake co., Jan. 1, 1860. 19—

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THE NORTH-CAROLINA PLANTER.

Devoted to Agriculture, Horticulture, and the Mechanic Art.

Hæ tibi erunt artes.—VIRGIL. { **These are the pursuits to which you should direct your attention.**

VOL. 3. RALEIGH, N. C., OCTOBER, 1860. NO. 10.

Selections.

Improved Agriculture in the Southern States,

The importance of some improved system of tillage for the Southern States is admitted by all. We need this improved system especially in the old cotton States, for the purpose of retaining what little soil is still left us, as well as in order to renovate our old worn out lands.

Quite a number of writers have arisen to discourse upon the laws of agricultural chemistry, which should be brought to bear upon our improved agriculture. But they so overwhelm the ordinary farmer with technical terms that he finds it quite as difficult a matter to understand these as he does to make new his old fields. To accomplish this latter feat, he finds hard enough; but when he must learn how to do it through the medium of a language—which is as incomprehensible to him as Patrick Henry asserted the language of he Choctaws was to Royal George—good heaven, how his honest rustic heart quails before the task! Either to understand the echnicalites of chemistry, or to improve poor land, is difficult enough; but when you require the common run of our farmers to do both, at one and the same time, you require of them an utter impossibility. No wonder their hearts sink within them at the bare mention of book-farming.

It is forgotten by most writers upon agriculture, that the learned professions have, as yet, absorbed almost all the learning in the land; and that when they pen an article for farmers, they write for a class of men who, as a body, are utterly ignorant of chemistry and its hard words. And even when some pedant pretends to popularize chemistry, so as to bring it within the capacity of those he designs to benefit, he really has not got sense enough to know what is comprehensible to the masses. How long will agricultural writers, politicians, so-called statesmen, poets, novelists, and public speakers forget, in all their fictions, that nine tenths of the human family belong to that class, whom their want of sense excludes from their lucrubations as to the means of benefiting their fellow-men?

It is my design, in this article, to pen a few thoughts for those of our farmers—being a majority of them—who can read the plain English version of the Bible, who peruse their newspaper and an occasional pamphlet, and who do not aspire above common parlance in what they read or what they say. Being a common man myself, I shall write what can be understood by common men.

Living in one of the wornout counties of Middle Georgia, upon an old plantation, I know what I am discoursing about. I say our lands can be, and ought to be, improved. And those which are fresh, ought to be kept in as good condition as they now are, although yielding us bountiful crops.

I do not believe that nature has arranged things so badly as to make it necessary for us to wear out our lands in order to make from them a living. I believe that if we would return to the soil, year after year, all the corn and cotton stocks, and wheat, and oat straw, together with the stable manure—which is the result of feeding our stock upon the grain grown upon our land—that that land would hold its own, if it did not improve. I once mentioned this theory to a friend, and pointed him to a majestic forest growing hard by as a proof of its correctness. "There," said I, "is that piece of woodland." See what a tremendous growth it produces year after year. It makes a better crop than is produced upon any of the land which you have in cotton or grain; and there is no rotation with it, but the same crop every year. And, yet, it does not become impoverished; but, if anything, improves."

My friend replied, that the essence of the soil which we cultivated was concentrated in the fruit which we took from it and this was the reason our soil was impoverished. But I answered my friend that the essence of the soil in the forest was also concentrated in the acorns, and hickory nuts, and persimmons, and grapes, and countless berries, which go to support the squirrels, the birds, and other little denizens of the wood. These must be fed as well as man; and when they are deprived of their food, it is as much a violation of nature's general economy, as it is for man to fail to get his daily supply of bread. We are apt to remember man to the exclusion of other creatures of that God—

> "Who sees, with equal eyes, as Lord of all,
> A hero perish or a sparrow fall."

Pope has Bible authority for the sentiment in this couplet; for we are told in Holy Writ, that not even a sparrow falls without the will of our Heavenly Father. The sparrow, the squirrel, and other little as well as large animals, then, being God's creatures, were designed to live; and in order to live, they must partake of the fruits of the earth, and the earth must produce for them their bread. This is found in acorns, berries, &c. And in these are concentrated as much of the essence of the soil as in the crops which go to make the staff of life for man. Hence, if it is actually necessary, in order to produce food for man, that the soil should be be exhausted, so, also, is it necessary to exhaust it in order to produce food for the birds of the air and the denizens of the forest. But, as I said in the beginning, I believe that nature has arranged her economy better than that it should be necessary to exhaust the soil to produce food for either man or beast, or clothing for the former.

Some of the foregoing propositions are liable to some modification. For instance, where I say that there is as much concentration of the elements of the soil in the production of forest crops, for the maintainance of birds and animals, as there is in the production of field crops for the maintainance of man, this proposition may be liable to some modification. I have not aggregated the elements drawn from the soil in the production of the forest and field crops, in order to determine with exact nicety which crop is the more exacting in its demands. I may be told that Indian corn, wheat. and cotton-seed, are rich in their concentration of oil and other elements. I answer, so are, also, the acorn, the chestnut, and the hickory-nut. But it is not important that I should be exact in this matter, especially as I do not wish to cumber this article with analyses, statistics, or technicalities.

It remains true, then, for the purposes of this paper, that there is no greater concentration of the elements of the soil in the production of field than of forest crops. Yet the latter do not exhaust. Why should the former?

It is not only true that the forest crop does not exhaust forest land, but I find that it is the opinion of some of the old farmers around me, that some of the lands have improved in intrinsic value since the settlement of this country. There are lands here which were at first passed over on account of their poverty, which are now productive on account of the accumulation upon them of vegetable mould. But why should our field crops exhaust, when our forest lands, if they do not improve, at least maintain their own, though producing annual abundance? The reason is, that in the latter case, nature is the farmer, and she regards her own economy; while man, in the former case, is the tiller of the soil, and totally disregards all the laws of nature, from whom he holds his fields.

In the forest, nature produces a large crop of acorns and berries, which go to feed nature's animals. But at the same time, she returns to the soil everything taken from it, except the food for the animals; and a part of this is also returned in the manure produced.

But how is it with man in his dealings with the soil? How is it, especially with us cotton planters, with whom I have more particularly to do? We take everything from the soil, and return nothing to it.—Our corn stalks, cotton stalks, wheat straw and often our cotton-seed, are suffered to dry up and give their substance to the winds, instead of being returned to the soil. If we should return all these things faithfully to the earth from which they first got their growth, we should soon see a very different state of things from that which now exists.

With the best system of tillage, I must confess that man submits his fields to washings and leachings, which nature's forest is fortunately relieved from. This could be obviated, to a great extent, if not almost entirely, by a proper system of deep ploughing, hillside ditchings, and underground drains. But I will grant that nature, in the cultivation of her forest will have some advantage in this respect. Then, again, she will have some advantage in the fact that her soil is always shaded, always has one vast umbrella of leaves spread over it, so as to prevent the unfavorable action of the sun, and prevent the escape of the fertelizing gases. On the other hand, man's fields has no such umbrella, either to keep the sun off, or to prevent the upward escape of the gasses which are generated from the corn and cotton stalks that are left upon the surface.

But where nature has the advantage of us in the foregoing respects, we must put ourselves on an equality with her, by calling in to our assistance her daughter, Art. Nature is quite willing that we shall have the assistance of her child in all of our undertakings; and she has so arranged it, that whenever her own operations cease for our benefit we may have the aid of her daughter, whom she sends in her place, so that if we employ this daughter rightly, it is nature still.

How can we so employ art as to put ourselves on an equality with nature in the management of our lands? Briefly, I reply, by deep ploughing, hillside ditching, and underground draining; by returning all the refuse of our field crops in such a way as to prevent their evaporation and flying off upon the wings of the wind, or being borne off upon the swelling tide of the rains, or riding away upon the red heralds of the sun's rays. To speak of these means more in detail, will be one object of the further development of this paper.

But here, I must observe, that we can have one advantage over nature in the cultivation of our fields. Besides sending our carts and wagons upon her premises, and hauling off the leaves which she has scattered over her soil to manure it, we can also send a living army as a foraging party, to ravish from nature's store-houses the feed which she designed for the mouth of her soil, and give it to the hungry stomach of our own. We can send our cows, and hogs, and sheep, out upon nature's pastures, and the food which they browse they will bring to our barn-yard or cow-pens in the shape of manure for our exhausted fields. This is why I said, a little back, that the forest got only a partial return of the fruit which it yielded. In the first place, our stock feed upon those fruits and return a part of it to our fields; and, in the next place, the birds and little wild animals do not confine themselves in their deposits entirely to the forest.

Having shown that it is not necessary that land should be exhausted in the production of large crops if we will treat it rightly, I will now proceed in detail to show in what the right treatment of land consists.

As soon after Christmas as the weather will permit, we should commence to prepare our cotton land. Before proceeding further, however, I will say that the farm, by which I propose to illustrate this article, consists of eight hundred acres. Half of this we will allow for arable land, the balance being old field, woodland, and pasture I will say there are twenty hands upon the plantation. In the first place, you must select your four hundred best cleared acres for arable land; the balance you must abandon to lie out and improve, or make pasture. I propose now that you plant, in the spring, one hundred acres in cotton, and one hundred in corn; and that the ensuing fall you sow one hundred acres of corn land in wheat. You will see that by the plan I present, you will have only ten, instead of twenty, acres to the hand in cotton and corn.

So we have the land arranged off; one hundred acres for cotton, one hundred for corn, and one hundred for wheat. Let us see now, how we will manage it. In the first place, I will say every acre must be manured, as far as it is possible, for this to be done. We will begin with the cotton land. As soon after Christmas as the weather will permit, you must commence to prepare for your cotton crop. In the first place, haul out, as fast only as you can use it, your stable manure and the scrapings around your yards, lots, and negro houses. Take a scooter plough then, and run off your rows three feet apart. Then with a very long, wide plough, run another furrow already made. Fill this trench up with manure, and with a turning plough, or a scooter with a wing atached, bed upon the manure, breaking out the middle with scooters.

There will be some difficulty at first in getting a sufficient quantity of well-rotted manure to use in planting your whole crop. But take time, and collect the decaying vegetable matter all over your plantation, and put it in the furrows. You know you are going to plant but five acres of cotton to the hand, when you usually plant ten. So you can have the time which it would take to prepare half of your cotton crop, planted in the usual way, to collect and deposit manure. If you fail in getting a sufficient quantity of this article about your houses and lots, you can supply the deficiency by going to the woods for it.—Send out your carts and wagons, rake off the soundest leaves from the top, and then with your weeding-hoes, collect the mould, half-rotted leaves, &c., and haul the mass to your cotton field; then deposit this in the furrows, bedding upon it as above. It is true, this will not do so well as well-rotted manure; but it will certainly add to the productiveness of the land; for it takes cotton so long to make, that even long manure may be made to rot sufficiently during the course of cultivation, to be taken up into the vegetable manufactory that produces stalks, leaves, lint, and seed.

I will presume that you finish preparing cotton land in the foregoing way by the 20th of February. You will then begin to prepare your one hundred acres of corn land. I will presume that you have had this land in cotton the preceding year.—Now, you must take your scooters and give it a good, thorough breaking. Then haul out your cotton–seed to manure your corn. If you have not enough of these to manure your whole crop, you had better save your best rotted stable manure to help out the cotton-seed, and supply the place of the stable manure, so taken from the cotton crop, with mould from the forest.

The 20th of March is time enough to commence planting corn. If you finish preparing your corn land before that time, devote yourself up to that date to the task of fencing, ditching, &c. Then when you begin to plant corn, lay off your rows, five feet apart, dropping a handful of cotton-seed every three feet in the drill, and then dropping the corn upon the seed.—These should not be thrown down in a close, thick bunch, but should be scattered in being thrown down, so that the roots of the corn in going downward should have no barrier to penetrate. After the corn is deposited in the furrow, then cover with a scooter furrow, or with the weeding-hoe.

If you finish planting your corn ever so soon, do not begin to plant cotton before the 20th of April, nor even at that date, unless you have finished preparing your land, as I shall now proceed to show.—Take a scooter, and run a furrow exactly in the middle of the ridge under which lies the manure deposited as shown heretofore. If the point of the scooter goes down and reaches the manure so as to stir it up, and incorporate it more fully with the soil, so much the better. Then with your turning ploughs, or winged scooters, throw the dirt again upon the furrow opened upon the ridge. Two scooter furrows, so thrown upon this furrow, will leave a middle, which can be ploughed by only one shovel furrow. You will see that this second operation is but a repetition of the first bedding of the land. If you wish to tend your crop easily, it must never be dispensed with, because by the time you get your corn planted, it will have been so long since your cotton land was first ploughed, that the grass will have to come up upon the ridge where cotton-seed is to be planted. And if you do not kiil this by the operation proposed it will cause you an immense deal of trouble during the cultivation of the crop. You will have grass in abundance coming ıp, and among the growing cotton, which you cannot destroy without greatly en-langering the stand. This grass should ıll be destroyed before the cotton is plan-ed; for then you can do it with the plow vith one fourth the labor, that it will take o do it with the hoes after the cotton is ıp, besides preventing any danger to the tand. Let me repeat, then, that this sec-ınd bedding of the land must by no means e dispensed with, it matters not how ate it takes you to accomplish it.

I will observe, by the way, that the rea-on why a shovel may be used in breaking ut the middle in the second bedding is, hat the land having been once broken, will be light enough to warrant the use f a broad plow in the second instance.

After the second bedding is completed, hen begin to plant. Take a short scoot-er, open a shallow furrow upon the ridge, trew in the seed, and then cover with a oard two feet long affixed to the plough-tock, said board having a notch in the entre as usual.

Now you have your cotton and corn ıanured and planted. I shall not now nter into a detailed account of the after ulture. Suffice it to say that both crops hould have frequent shallow ploughing—hallow, so as to disturb the roots of the rowing crops as little as possible—fre ent, so as to keep down all grass and eeds.

By the time you have got all your corn d cotton worked over the first time, our wheat will be ready to cut. This ill be about the beginning of June. As on as it has time to dry sufficiently in e shock, take your thresher to the field d get it out. Then carefully stow away l the wheat-straw into your barn for the rpose of feeding your cattle in the win-r. If you have a sufficient quantity of ucks to make your cattle turn up their ses at your wheat straw, feed it to them any way. What they do not eat, they will trample upon and convert into manure. In the absence of better food, they may be supported upon wheat straw, especially if cut up by means of a cutter, and then sprinkled with salt water. The wheat itself should be well sunned, and then stowed away in boxes. Some experienced farmers in my county always throw a few leaves of the Pride of China in among the wheat, to keep out the weevil.

After saving your wheat, then turn your attention, with renewed zeal, to your cotton and corn. This may be laid by, by the middle or last of July. If there is an interval between laying by the crop and pulling fodder, devote it assiduously to general improvements upon the farm.

After the fodder is saved, which it will take to the middle of August to accomplish, you will have two more weeks—until the 1st of September—to devote to general improvements. Some cotton may open before that time, but I do not recommend you to stop to pick it out. In the ideas which I am about to advance now, I know almost every farmer will differ with me. The usual plan is to attend to the cotton to the exclusion of everything else. I say let the cotton have the time and attention which justly belong to it, and no more.

It is a common saying, and a true one among our farmers, that it takes just as much time to save a short cotton crop as a long one. This should not be so. I think we should go to some other work and leave the cotton to open. It is true that winds and rains and storms may come and injure the staple, and you may get a fraction less for your cotton crop than you otherwise would. But recollect that the time which you save in refraining from running over your field after scattered cotton, is worth money to you in the improved system of tillage which I propose. If you let king cotton be as imperious in his demands upon you as he usually is, you will be attending to his commands from the 1st day of January to the 25th day of December, both inclusive. But strip him of a portion of his assumed royal prerogative, adopt a more republican system upon your farm, and it will not only be better for other productions of your soil, but will, in the end, benefit the king himself. For if you allow him to have his own way, he will soon exhaust your soil, so that neither he nor anything else can flourish upon it.—But devote only the proper time and attention to cotton, and you can improve your land, and thus not only corn and wheat, but cotton also, may be better grown upon it.

Then I would say, do not begin to pick cotton until the 1st of September, nor even then unless it is pretty well opened. Devote August to pulling fodder and to improvements. Then pick cotton all the month of September. At the beginning of October, commence to gather your corn and seed peas. After this is finished, turn your stock upon the harvest field to glean the waste corn and peas. Then take your wagons and carts, and haul the corn-stalks up in piles of sufficient size all over the field, putting them in rail pens. First put a layer of stalks, then of lime, stable-manure, ashes, &c.; then another layer of stalks must be added, throwing in as much dirt, vegetable mould, pea-vines, green weeds, &c., as are necessary to rot the whole mass. All the pile must then be thoroughly wetted, and left to decay until the manure is needed to put into the ground the next time the land is planted in corn. Say you do this in October, 1860, then in November you sow the land in wheat, and it will make a wheat crop in 1861. In 1862 it will rest. In 1863 it will be planted in cotton, and in 1864 in corn again. So your piles of corn-stalks will have over three years to rot and make manure from the time you put them up until you wish to use them. In this way you may make a plenty of manure to your hand, in your field, to manure your whole corn crop. Recollect you are to haul out and put up with your corn-stalks, all your stable manure, scrapings from your houses and lots, ashes, and all the lime you are willing to buy, so as more effectually to ferment and rot the whole mass. If you think the corn-stalks are not sufficient to make you enough manure, then use all the pea-vines, weeds, grass and leaves from the forest which you have time to collect.

This done, if you have any interval of time between its accomplishment and the first of November, devote it to picking out cotton. About the first of November, begin and sow your wheat. Take all the cotton-seed which you have ginned out and put it upon your wheat land. This is all the manure which you have now to spare to put upon wheat. The balance of our cotton-seed must not be put upon your corn land the ensuing spring, but must be saved for the wheat crop to be sown in the fall of 1861.

After your cotton is picked out, which should be by the 25th of December, you should then, after the negroes have had their Christmas holidays, begin and haul up all the cotton stalks, putting them in pens, and throwing in weeds, leaves, lime, ashes, stable-manure, &c., as you have done in case of the corn-stalks. This mass will have three years to rot before being used to manure cotton the next time the land is planted in cotton. It will be seen that I propose to manure corn with manure made of corn-stalks, and cotton with manure made of cotton-stalks, so that like may produce like—an important item.

It will be seen that it will take several years to get fully into the plan of manuring which I propose. In the meantime the best shift possible must be made to manure all the land planted, which can be done by raking up all the vegetable mould, &c., that can be collected upon the plantation, together with cotton-seed, stable-manure, leaves trodden in your lots, &c., &c. But the heaps of corn and cotton-stalks must not be disturbed before the expiration of three years.

In the first place, you put up your corn-stalks when you go to sow your wheat.—These will lie and rot three years, and at the expiration of that time, can be used to manure with when the land is planted in corn again.

In the next place, you put up your cotton-stalks after picking out your cotton, so as to make manure three years afterward, when the land is planted in cotton again.

In the third place, you use your cotton-seed to manure your wheat crop.

In the fourth place, you rest one fourth of your arable land every fourth year; and the foregoing plan of manuring and rest are the leading features of the system of improved agriculture which I propose for the South.

* * *

Next to God, we are indebted to women, first for life itself, and then for making it worth having.

Deficiencies of Soils. Means of Restoration, Etc.

POTASH.—*Potash* is often deficient in the soil. Its deficiency may have been caused in two ways. Either it may not have existed largely in the rock from which the soil was formed, and consequently is equally absent from the soil itself, or it may have once been present in sufficient quantities, and been carried away in crops, without being returned to the soil in the form of manure until too little remains for the requirements of fertility.

In either case, its absence may be accurately detected by a skilful chemist, and it may be supplied by the farmer in various ways. Potash, as well as all of the other mineral manures, is contained in the excrements of animals, but not (as is also the case with the others) in sufficient quantities to restore the proper balance to soils where it is largely deficient, nor even to make up for what is yearly removed with each crop, except that crop (or its equivalent) has been fed to such animals as return *all* of the fertilizing constituents of their food in the form of manure, and this be all carefully preserved and applied to the soil. In all other cases, it is necessary to apply more potash than is contained in the excrements of animals.

Unleached wood ashes is generally the most available source from which to obtain this alkali. The ashes of all kinds of wood contain potash (more or less according to the kind.)

If the ashes are *leached*, the potash is removed; and, hence for the purpose of supplying it, they are worthless; but *unleached* ashes are an excellent source from which to obtain it. They may be made into compost with muck, as directed in a previous chapter, or applied directly to the soil. n either case the potash is available directly to the plant, or is capable of uniting with the silica in the soil to form silicate of potash. Neither potash nor any other kali should ever be applied to animal anures unless in compost with an ab-rbent, as they cause the ammonia to be rown off and lost.

Potash sparlings, or the refuse of potash warehouses, is an excellent manure for nds deficient in this constituent.

Potash marl, such as is found in New rsey, contains a large proportion of potash, and is an excellent application to soils requiring it.

Feldspar, *kaolin*, and other minerals containing potash, are, in some localities, to be obtained in sufficient quantities to be used for manurial purposes.

Granite contains potash, and if it can be crushed (as is the case with some of the softer kinds,) it serves a very good purpose.

SODA.—*Soda*, the requirement of which is occasioned by the same causes as create a deficiency of potash, and all of the other ingredients of vegetable ashes, may be readily supplied by the use of *common salt* (chloride of sodium), which consists of about one half sodium (the base of soda). The best way to use salt is in the lime and salt mixture, previously described, or as a direct application to the soil. If too much salt be given to the soil it will kill any plant. In small quantities, however, it is highly beneficial, and if *six bushels per acre* be sown broadcast over the land, to be carried in by rains and dews, it will not only destroy many insects (grubs, worms, etc.), but will, after decomposing and becoming chlorine and soda, prove an excellent manure. Salt, even in quantities large enough to denude the soil of all vegetation, is never *permanently* injurious. After the first year, it becomes resolved into its constituents, and furnishes chlorine and soda to plants, without injuring them. One bushel of salt in each cord of compost will not only hasten the decomposition of the manures, but will kill all seeds and grubs—a very desirable effect. While small quantities of salt in a compost heap are beneficial, too much (as when applied to the soil) is positively injurious, as it arrests decomposition; fairly *pickles* the manures, and prevents them from rotting.

For *asparagus*, which is a marine plant, salt is an excellent manure, and may be applied in almost unlimited quantities, *while the plants are growing*, if used after they have gone to top, it is injurious.—Salt has been applied to asparagus beds in such quantities as to completely cover them, and with apparent benefit to the plants.—Of course large doses of salt kill all weeds, and thus save labor and the injury to the asparagus roots, which would result from their removal by hoeing. Salt may be used advantageously in any of the foregoing manners, but should always be applied with care. For ordinary farm purposes, it is undoubtedly most profitable to use the salt with lime, and make it perform the double duty of assisting in the decomposition of vegetable matter, and fertilizing the soil.

Soda unites with the silica in the soil, and forms the valuable *silicate of soda.*

Nitrate of soda, or cubical nitre, which is found in South America, consists of soda and nitric acid. It furnishes both soda and nitrogen to plants, and is an excellent manure.

LIME.—The subject of *lime* is one of most vital importance to the farmer; indeed, so varied are its modes of action and its effects, that some writers have given it credit for every thing good in the way of farming, and have gone so far as to say that *all* permanent improvement of agriculture must depend on the use of lime.—Although this is far in excess of the truth (as lime cannot plow, nor drain, nor supply anything but *lime* to the soil), its many beneficial effects demand for it the closest attention.

As food for plants, lime is of considerable importance. All plants contain lime—some of them in large quantities. It is an important constituent of straw, meadow hay, leaves of fruit trees, peas, beans, and turnips. It constitutes more than one third of the ash of red clover. Many soils contain lime enough for the use of plants, in others it is deficient, and must be supplied artificially before they can produce good crops of those plants of which lime is an important ingredient. The only way in which the exact quantity of lime in the soil can be ascertained is by chemical analysis. However, the amount required for the mere feeding plants is not large, (much less than one per cent.), but lime is often necessary for other purposes; and setting aside, for the present, its feeding action, we will examine its various effects on the mechanical and chemical condition of the soil.

1. It corrects acidity (sourness).
2. It hastens the decomposition of the organic matter in the soil.
3. It causes the mineral particles of the soil to crumble.
4. By producing the above effects, it prepares the constituents of the soil for assimilation by plants.
5. It is *said* to exhaust the soil but it does so in a very desirable manner, the injurious effects of which may be easily avoided.

1. The decomposition of organic matter in the soil, often produces acids which makes the land sour, and cause it to produce sorrel and other weeds, which interfere with the healthy growth of crops.—Lime is an alkali, and if applied to soils suffering from sourness, it will unite with the acids, and neutralize them, so that they will no longer be injurious.

2. We have before stated that lime is a decomposing agent, and hastens the rotting of muck and other organic matter. It has the same effect on the organic parts of the soil, and causes them to be dissolved into the gases and minerals of which they are formed. It has this effect, especially on organic matters containing nitrogen, causing them to throw off ammonia; consequently, it liberates this gas from the animal manures in the soil.

3. Various inorganic compounds in the soil are so affected by lime, that they lose their power of holding together, and crumble, or are reduced to finer particles, while some of their constituents are rendered soluble. One way in which this is accomplished is by the action of the lime on the silica contained in these compounds, forming the silicate of lime. This crumbling effect improves the mechanical condition of the soil.

4. We are now enabled to see how lime prepares the constituents of the soil for the use of plants.

By its action on the roots, buried stubble, and other organic matter in the soil, it causes them to be decomposed, and to give up many of their gaseous and inorganic constituents for the use of roots.—In this manner the organic matter is prepared for use more rapidly than would be the case, if there were no lime present to hasten its decomposition.

By the decomposing action of lime on the mineral parts of the soil, they also are placed more rapidly in a useful condition than would be the case, if their preparation depended on the slow action of atmospheric influences.

Thus, we see that lime, aside from its use directly as food for plants, exerts a eneficial influence on both the organic nd inorganic parts of the soil.

5. Many contend that lime exhausts 1e soil.

If we examine the manner in which it oes so, we shall see that this is no argu- ent against its use.

It exhausts the organic parts of the soil, y decomposing them, and resolving them to the gases and minerals of which they e composed. If the soil do not contain sufficient quantity of absorbent matter, ich as clay or charcoal, the gases arising om the organic matter are liable to es- pe; but when there is a sufficient amount these substances present (as there al- ays should be,) these gases are all retained ntil required by the roots of plants.— ence, although the organic matter of ma- ure and vegetable substances may be *al- ed in form*, by the use of lime, it can cape, (except in very poor soils,) only as is taken up by roots to feed the crop, d such exhaustion is certainly profitable; ll, in order that the fertility of the soil ay be maintained, enough of organic anure should be applied, to make up for e amount taken from the soil by the crop, er liberation for its use by the action of e lime. This will be but a small propor- n of the organic matter contained in the op, as it obtains the larger part from the nosphere.

The only way in which lime can exhaust e inorganic part of the soil is by the alter- g of its condition, so that plants can use more readily. That is, it exposes it for ution in water. We have seen that tilizing matter cannot be leached out of ood soil, in any material quantity, but only be carried down to a depth of out thirty-four inches. Hence, we see t there can be no loss in this direction; l, as inorganic matter cannot evaporate m the soil, the only way in which it escape is through the structure of nts.

If lime is applied to the soil, and in- ases the amount of crops grown by fur- hing a larger supply of inorganic matter, course, the removal of inorganic sub- ices from the soil will be more rapid n when only a small amount of crops is wn, and the soil will be sooner exhauct- —not by the plants. In order to make for this exhaustion, it is necessary that fficient amount of inorganic matter be supplied to compensate for the increased quantity taken away by plants.

Thus we see, that it is hardly fair to accuse the *lime* of exhausting the soil, when it only improves its character, and increases the amount of its yield. It is the *crop* that takes away the fertility of the soil (the same as would be the case if no lime were used, only faster as the crop is larger), and in all judicious cultivation, this loss will be fully compensated by the application of manures thereby preventing the exhanstion of the soil.

Kind of lime to be used. The first consideration in procuring lime for maunring land, is to select that which contains but lttle, if any *magnesia.* Nearly all stone lime contains more or less of this, but some kinds contain more than others. When magnesia is applied to the soil, in too large quantities, it is positively injurious to plants, and great care is necessary in making selection. As a general rule, it may be stated, that the best plastering lime makes the best manure. Such kinds only should be used as are known from experiment not to be injurious.

Shell lime is undoubtedly the best of all, for it contains no magnesia, and it does contain a small quantity of *phosphate of lime.* In the vicinity of the sea-coast, and near the lines of railroads, oyster shells, etc., can be cheaply procured.— These may be prepared for use in the same manner as stone lime.*

The preparation of the lime is done by first burning and then slaking, or by putting it directly on the land, in an unslacked condition, after its having been burned. Shells are sometimes *ground*, and used without burning; this is hardly advisable, as they cannot be made so fine as by burnin and slacking. As has already been stated, lime usually exists in nature, in the form of carbonate of lime, as limestone, chalk, or marble (being lime and carbonic acid combined), and when this is burned, the carbonic acid is thrown off, leaving the lime in a pure or caustic form. This is called burned lime, quick-lime, lime shells, hot lime, etc. If the proper quantity of water be poured on it, it is immediately taken up by the lime, which falls into a dry powder, called *slacked lime.* If *quick-lime* were left exposed to the weather, it would absorb moisture from the atmosphere, and become what is termed *air slaked.*

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*Marl is earth containing lime, but its use is not to be recommended in this country, except where it can be obtained at little cost, as the expenses of carting the earth would often be more than the value of the lime.

When *slacked lime* (consisting of lime and water) is exposed to the atmosphere, it absorbs carbonic acid, and becomes carbonate of lime again; but it is now in the form of a very fine powder, and is much more useful than when in the stone.

If quick-lime is applied directly to the soil, it absorbs first moisture, and then carbonic acid, becoming finally a powdered carbonate of lime.

One ton of *carbonate of lime* contains 11¼ cwt. of lime; the remainder is carbonic acid. One ton of *slacked lime* contains about 15 cwt. of lime; the remainder is water.

Hence we see that lime should be burned, and not slacked, before being transported, as it would be unprofitable to transport the large quantity of carbonic acid and water contained in carbonate of lime and slacked-lime. The quick-lime may be slacked, and carbonated after reaching its destination, either before or after being applied to the land.

As has been before stated, muck is gained by slaking lime with *salt water*, thus imitating the lime and salt mixture. Indeed in many cases, it will be found profitable to use all lime in this way.—Where a direct action on the inorganic matters contained in the soil is desired, it may be well to apply the lime directly in the form of quick-lime; but, where the decomposition of the vegetable and animal constituents of the soil is desired, the correction of *sourness*, or the supplying of lime to the crop, the mixture with salt, would be advisable.

The amount of lime required *by plants* is, as was before observed, usually small compared with the whole amount contained in the soil; still it is not unimportant.

			OF LIME.	
25	bus. of wheat	contain about	13	lbs.
25	" barley	"	10½	"
25	" oats	"	11	"
2	tons of turnips	"	12	"
2	" potatoes	"	5	"
2	" red clover	"	77	"
2	" rye grass	"	30	" *

The amount of lime required at each application, and the frequency of those applications, must depend on the chemical and mechanical condition of the soil. No exact rule can be given, but probably the custom of each district—regulated by long experience—is the best guide.

Lime sinks in the soil; and therefore, when used alone, should always be applied as a top dressing to be carried into the soil by rains. The tendency of lime to settle is so great that, when cutting drains, it may often be observed in a whitish streak on the top of the subsoil. After heavy doses of lime have been given to the soil, and have settled so as to have apparently ceased from their action, they may be brought up and mixed with the soil by deeper plowing.

Lime should never be mixed with animal manures, unless in compost with muck, or some other good absorbent, as it is liable to cause the escape of their ammonia.

PLASTER OF PARIS.—*Plaster of Paris or Gypsum* (sulphate of lime) is composed of sulphuric acid and lime in combination. It is called 'plaster of Paris,' because it constitutes the rock underlying the city of Paris.

It is a constituent of many plants. It also furnishes them with sulphur—a constituent of the sulphuric acid which it contains.

It is an excellellent absorbent of ammonia, and is very useful to sprinkle around stables, poultry houses, pig-styes, and privies where it absorbs the escaping gases, saving them for the use of plants, and purifying the air, thus rendering stables, etc., more healthy than when not so supplied.

It has been observed that the extravagant use of plaster sometimes induces the growth of *sorrel*. This is probably the case where the soil is deficient in lime. In such instances, the lime required by plants is obtained by the decomposition of the plaster. The lime enters into the construction of the plant, and the sulphuric acid remains *free* rendering the soil, *sour*, and therefore in condition to produce sorrel. In such a case, an application of *lime* will correct the acid by uniting with it and converting it into *plaster*.

CHLORIDE OF LIME.—*Chloride of lime* is a compound of *lime and chlorine.* It furnishes both of these constituents to plants, and it is an excellent absorbent of ammonia and other gases arising from decomposition—hence its usefulnes in destroying bad odors, and in preserving fertilizing matters for the use of crops.

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*The straw producing the grain and the turnip and potato tops contain more lime than the grain and roots.

It may be used like plaster, or in the decomposition of organic matters, where it not only hastens decay, but absorbs and retains the escaping gases. It will be recollected that *chloride of lime* is one of the products of the *lime and salt mixture.*

Lime in combination with *phosphoric acid* forms the valuable *phosphate of lime*, of which so large a portion of the ash of grain, and the bones of animals, is formed. This will be spoken of more at length under the head of 'phosphoric acid.'

MAGNESIA.—Magnesia is a constituent of vegetable ashes, and is almost always in the soil in sufficient quantities. When analysis indicates that it is needed, it may be applied in the form of *magnesian lime*, or *refuse epsom salts*, which are composed of sulphuric acid and magnesia (sulphate of magnesia).

The great care necessary concerning the use of magnesia is, not to apply too much of it, it being, when in excess, as has been previously remarked, injurious to the fertility of the soil. Some soils are hopelessly barren from the fact that they contain too much magnesia.

BONES.—*Bones* consists, when dried, of about one third organic matter, and two thirds inorganic matter.

The organic matter consists chiefly of *gelatine*—a compound containing *nitrogen.*

The inorganic part is chiefly *phosphate of lime.*

Hence, we see that bones are excellent, as both organic and mineral manure. The organic part, containing nitrogen, forms, *ammonia*, and the inorganic part supplies the much needed *phosphoric acid* to the soil.

Liebig says that, as a producer of ammonia, 100 lbs. of dry bones are equivalent to 250 lbs. of human urine.

Bones are applied to the soil in almost every conceivable form. *Whole bones* are often used in very large quantities; their action, however, is extremely slow, and it is never advisable to use bones in this form.

Ten bushels of bones, finely ground, will produce larger results, during the current ten years after application, than would ensue from the use of one hundred bushels merely broken, not because the dust contains more fertilizing matter than the whole bones, but because that which it does contain is in a much more available condition. It ferments readily, and produces ammonia, while the ashy parts are exposed to the actions of roots.

Bone-black. If bones are burned in retorts, or otherwise protected from the atmosphere, their organic matter will all be driven off, except the carbon, which not being supplied with oxygen cannot escape. In this form bones are called *ivory black*, or *bone-black.* It consists of the inorganic matter, and the carbon of the bones. The nitrogen having been expelled it can make no ammonia, and thus far the original value of bones is reduced by burning; that is, one ton of bones contains more fertilizing matter before, than after burning; but one ton of bone black is more valuable than one ton of raw bones, as the carbon is retained in a good form to act as an absorbent in the soil, while the whole may be crushed or ground much more easily than before being burned. This means of pulverizing bones is adopted by manufactures, who replace the ammonia in the form of guanno, or otherwise; but it is not to be recommended for the use of farmers, who should not lose the ammonia, forming a part of bones, more than of other manure.

Composting bones with ashes is a good means of securing their decomposition.—They should be placed in a water-tight vessel (such as a cask); first, three or four inches of bones, then the same quantity of strong unleached wood ashes, continuing these alternate layers until the cask is full, and keeping them *always wet.* If they become too dry they will throw off an offensive oder, accompanied by the escape of ammonia, and consequent loss of value.—In about one year, the whole mass of bones (except, perhaps, those at the top) will be softened, so that they may be easily crushed, and they are in a good condition for manuring. The ashes are, in themselves, valuable, and this compost is excellent for many crops, particularly for Indian corn. A little diluted sulphuric acid, occasionally sprinkled on the upper part of the matter in the cask, will prevent the escape of the ammonia.

Boiling bones under pressure, whereby their gelatine is dissolved away, and the inorganic matter left in an available conditions, from it softness, is a very good way of rendering them useful; but, as it requires, among other things, a steam boiler, it is hardly probable that it will be largely adopted by farmers of limited means.

Any or all of these methods are good, but bones cannot be used with true economy, except by changing their inorganic matter into

SUPER-PHOSPHATE OF LIME.

Super-phosphate of lime is made by treating phosphate of lime, or the ashes of bones, with sulphuric acid.

Phosphate of lime, as it exists in bones, consists of one atom of phosphoric acid and three atoms of lime. It may be represented as

$$\text{Phosphoric acid} \quad \left\{ \begin{array}{l} \text{Lime} \\ \text{Lime} \\ \text{Lime} \end{array} \right.$$

By adding a proper quantity of sulphuric acid with this, it becomes *super*-phosphate of lime; that is, the same amount of phosphoric acid, with a smaller proportion of lime (or a *super*-abundance of phosphoric acid), the sulphuric acid, taking two atoms of lime away from the compound, combined with it making sulphate of lime (plaster.) The changes may thus be represented.

Phosphate of lime { Phosporic acid } Super-phosphate of lime.
Lime }
Lime } Sulphate of lime.
Lime }
Sulphuric acid }

Super-phosphate of lime may be made from whole bones, bone dust, bone-black, or from the pure ashes of bones.

The process of making it from whole bones is slow and troublesome, as it requires a long time for the effect to diffuse itself through the whole mass of a large bone. When it is made in this way, the bones should be *dry*, and the acid should be diluted in many times its bulk of water, and should be applied to the bones (which may be placed in a suitable cask, with a spiggot at the bottom), in quantities sufficient to cover them, about once in ten days, and at the end of that time, one half of the liquid should be drawn off by the spiggot. This liquid is a solution of super-phosphate of lime, containing sulphate of lime, and may be applied to the soil in a liquid form, or through the medium of a compost heap. The object of using so much water is to prevent an incrustation of sulphate of lime on the surfaces of the bones, this must be removed by stirring the mass, which allows the next application of acid to act directly on the phosphate remaining. The amount of acid required is about 50 or 60 lbs. to each 100 lbs. of bones. The gelatine will remain after the phosphate is all dissolved, and may be composted with muck, or plowed under the soil, where it will form ammonia.

Bone dust or *crushed bones,* may be much more easily changed to the desired condition, as the surface exposed is much greater, and the acid can act more generally throughout the whole mass. The amount of acid required is the same as in the other case, but it may be used *stronger,* two or three times its bulk of water be sufficient, if the bones are finely ground or crushed—more or less water should being used according to the fineness of the bones The time occupied will also be much less, and the result of the operation will be in better condition for manure.

Bones may be made fine enough for this operation, either by grinding, etc., or by boiling under pressure, as previously described; indeed, by whatever method bones are pulverized, they should always be treated with sulpuric acid before being applied to the soil, as this will more than double their value for immediate use.

Bone-black is chiefly used by manufacturers of super-phosphate of lime, who treat it with acid the same as has been directed above, only that they grind the black very finely before applying the acid.

Bones ashes, or bone burned to whiteness, may be similarly treated. Indeed, in all of the forms of bones here described, the phosphate of lime remains unaltered, as it is indestructible by heat; the differences of composition are only in the admixture of organic constituents.

The reason why super-phosphate of lime is so much better than phosphate, may be easily explained. The *phosphate* is very *slowly* soluble in water, and consequently furnishes food to plants slowly. A piece of bone as large as a pea may lie in the soil for years without being all consumed; consequently, it will be years before its value is returned, and it pays no interest on its cost while lying there. The *super-phosphate* dissolves very *rapidly* and furnishes food for plants with equal facility; hence its much greater value as a manure.

It is true that the *phosphate* is the most *lasting* manure; but, once for all, let us caution farmers against considering this as a virtue in mineral manures, or in organic manures either, when used on soils containing the proper absorbents of ammonia. They are *lasting*, only in proportion as they are *lazy*. Manures are worthless unless they are in condition to be immediately used. The farmer who wishes his manure to *last* in the soil, and to lose their use, may be justly compared with the *miser*, who buries his gold and silver in the ground for the satisfaction of knowing that he owns it. It is an old and a true saying that "a nimble sixpence is better than a slow shilling."

IMPROVED SUPER-PHOSPHATE OF LIME.—To show the manner in which super-phosphate of lime is perfected, and rendered the manure for general uses, which has yet been made, containing large quantities of phosphoric acid and a good supply of ammonia,—hereby covering the two leading deficiencies in a majority of soils, it may be well to explain the composition of the *improved superphosphate of lime* invented by Prof. Mapes.

This manure consists of the following ingredients in the proportions named :—

100 lbs. bone-black (phosphate of lime and carbon).
56 " sulphuric acid.
36 " guano.
20 " sulphate of ammonia.

The sulphuric acid has the before-mentioned effect on the bone-black, and *fixes* the ammonia or the guano by changing it to a sulphate. The twenty pounds of sulphate of ammonia added, increase the amount, so as to furnish nitrogen to plants in sufficient quantities to give them energy, and induce them to take up the super-phosphate of lime in the manure more readily than would be done, were there not a sufficent supply of ammonia in the soil.

The addition of the guano, which contains all of the elements of fertility, and many of them in considerable quantities, renders the manure of a more general character, and enables it to produce very large crops of almost any kind, while it assists in fortifying the soil in what is usually its weakest point—phosphoric acid.

Prof. Mapes has more recently invented a new fertilizer called nitrogenized super-phosphate of lime, composed of the improved super-phosphate of lime and blood, dried and ground before mixture, in equal proportions. This manure, from its highly nitrogenous character, theoretically surpasses all others, and probably will be found in practice to have great value; its cost will be rather greater than guano.

We understand its manufacture will shortly be commenced by a company now forming for that purpose.

Many farmers will find it expedient to purchase bones, or bone dust, and manufacture their own super-phosphate of lime; others will prefer to purchase the prepared manure. In doing so, it should be obtained of men of known respectability, as manures are easily adulterated with worthless matters; and, as their price is so high, that such deception may occasion great loss.

We would not recommend the application of any artificial manure, without first obtaining an analysis of the soil, and knowing *to a certainty* that the manure is needed; still, when no analysis has been procured, it may be profitable to apply such manures as most generally produce good results—such as stable manure, night soil, the improved superphosphate of lime; or, if this cannot be procured, guano.

SILICA.—*Silica* (or sand) always exists in the soil in sufficient quantities for the supply of food for plants; but, as has been often stated in the preceding pages, not always in the proper condition.—This subject has been so often explained to the student of agriculture, that it is only necessary to repeat here, that when the weakness of the stalk for plants grown on any soil indicates an ability in that soil to supply the silicates required for strength, not more sand should be added, but *alkalies*, to combine with the sand already contained in it, and make *soluble silicates* which are available to roots.

Sand is often necessary to stiff clays, as a mechanical manure, to loosen their texture and render them easier of cultivation, and more favorable to the distribution of roots, and to the circulation of air and water.

CHLORINE.

Chroline, a necessary constituent of plants and often in the soil (as indicated by analysis), may be applied in the form of salt (chloride of sodium) or chloride of lime. The former may be dissolved in the water used to slake lime, the latter may, with much advantage, be sprinkled around stables and other places where fertilizing gases are escaping, and after being saturated with ammonia, applied to the soil, thus serving a double purpose.

OXIDE OF IRON.—Nearly all soils contain sufficient quantities of *oxide of iron*, or iron rust, so that this substance can hardly be required as a manure.

Some soils, however, contain the *prot*oxide of iron in such quantities as to be injurious to plants. When this is the case, it is necessary to plow the soil thoroughly, and use such other mechanical means as shall render it open to the admission of air. The *prot*oxide of iron will then take up more oxygen, and become the *prot*oxide—which is not only inoffensive, but is absolutely necessary to fertility.

OXIDE OF MANGANESE.—This can hardly be called an essential constituent of plants and is never taken into consideration in manuring lands.

Various other Mineral Manures.

LEACHED ASHES.—Among the mineral manures which have not yet been mentioned—not coming strictly under any of the preceding heads, is the one known as *leached ashes*.

These are not without their benefits, though worth much less than unleached ashes, which, besides the constituents of those which have been leached, contain much potash, soder, etc.

Farmers have generally overrated the value of leached ashes, because they contain small quantities of available phosphate of lime, and soluble silicates in which most old soils are deficient. While we witness the good results ensuing from their application, we should not forget that the fertilizing ingredients of *thirty bushels* of these ashes may be bought in a more convenient form for *ten* or *fifteen cents*, or for less than the cost of spreading the ashes on the soil. In many parts of Long Island farmers pay as much as eight or ten cents per bushel for this manure, and thousands of loads of leached ashes are taken to this locality from the river counties of New York, and even from the State of Maine, and are sold for many times their value, producing an effect which could be as well and much more cheaply obtained by the use of small quantities of super-phosphate of lime and potash.

These ashes often contain a little charcoal (resulting from the imperfect combustion of the wood), which acts as an absorbent of ammonia.

It is sometimes observed that *unleached* ashes, when applied in the spring, cause grain to lodge. When this is the case, as it seldom is, it may be inferred that the potash which they contain causes so rapid a growth, that the soil is not able to supply silicates as fast as they are required by the plants, but after the first year, the potash will have united with the silica in the soil, and overcome the difficulty.

OLD MORTAR.—*Old mortar* is a valuable manure, because it contains nitrate of potash and other compounds of nitric acid with alkalies.

These are slowly formed in the mortar by the changing of the nitrogen of the hair (in the mortar) into nitric acid, and the union of this with the small quantities of *potash*, or with the *lime* of the plaster. Nitrogen, presented in other forms, as ammonia, for instance, may be transformed into nitric acid, by uniting with the oxygen of the air, and this nitric acid combines immediately with the alkalies of the mortar.

The lime contained in the mortar may be useful in the soil for the many purposes accomplished by other lime.

GAS HOUSE LIME.—*The refuse lime of gas works* where it can be cheaply obtained, may be advantageously used as a manure. It consists, chiefly, of various compounds of sulphur and lime. It should be composted with earth or refuse matter, so as to expose it to the action of air. It should never be used fresh from the gas house. In a few months the sulphur will have united with the oxygen of the air, and become sulphuric acid, which unites with the lime and makes sulphate of lime (plaster), which form it must assume, before it is of much value. Having been used to purify gas made from coal, it contains a small quantity of ammonia, which adds to its value. It is considered a profitable manure in England, at the price there paid for it [forty cents a cart load,] and if of good quality, it may be worth double that sum, especially for soils deficient in plaster, or for such crops as are much benefited by plaster. Its price must, of course, be regulated somewhat by the price of lime, which constitutes a large proportion of its fertilizing parts. The offensive odor of this compound renders it a good protection against many insects.

The refuse *liquor of gas works* contains enough ammonia to make it a valuable manure.

SOAPERS' LEY AND BLEACHERS LEY.—The refuse ley of soap factories and bleaching establishments contains greater or less quantities of soluble silicates and and alkalies [especially soda and potash] and is a good addition to the tank of the compost heap, or it may be used directly as a liquid application to the soil. The soapers' ley, especially, will be found a good manure for lands on which grain lodges.

Much of the benefit of this manure arises from the soluble silicates it contains, while its nitrogenous matter, obtained from those parts of the fatty matters which cannot be converted into soap, and consequently remains in this solution, forms a valuable addition. Heaps of soil saturated with this liquid in autumn, and subjected to the freezings of winter, form an admirable manure for spring use. Mr. Crane, near Newark (N. J.), has long used a mixture of spent ley and stable manure, applied in the fall to trenches plowed in the soil, and has been most successful in obtaining large crops.

IRRIGATION.—*Irrigation* does not come strictly under the head of inorganic manures, as it often supplies ammonia to the soil. Its chief value, however, in most cases, must depend on the amount of mineral matter which it furnishes.

The word "irrigation" means simply *watering*. In many districts water is in various ways made to overflow the land, and is removed when necessary for the purposes of cultivation. All river and spring water contains some impurities, many of which are beneficial to vegetation. These are derived from the earth over, or through which, the water has passed, and ammonia absorbed from the atmosphere when water is made to cover the earth, especially if its rapid motion be arrested, much of this fertilizing matter settles, and is deposited on the soil. The water which sinks into the soil carries its impurities to be retained for the uses of plants. When, by the aid of under-drains, or in open soils, the water passes *through* the soil, its impurities are arrested, and become available in vegetable growth. It is, of course, impossible to say exactly what kind of mineral matter is supplied by water, as that depends on the kind of rock or soil from which the impurities are derived; but whatever it may be, it is generally soluble and ready for immediate use by plants.

Water which has run over the surface of the earth contains bath ammonia and mineral matter, while that which has arisen out of the earth, contains usually only a mineral matter. The direct use of the water of irrigation as a solvent for the mineral ingredients of the soil, is one of its main benefits.

To describe the many modes of irrigation would be too long a task for our limited space. It may be applied in any way in which it is possible to cover the land with water, at stated times. Care is necessary, however, that it do not wash more fertilizing matter from the soil than it deposits on it, as would often be the case, if a strong current of water were run over it. Brooks may be dammed up, and thus make to cover a large quantity of land. In such a case the rapid current would be destroyed, and the fertilizing matter would settle; but, if the course of the brook were turned, so that it would run in a current over any part of the soil, it might carry away more than it deposited, and thus prove injurious. Small streams turned on to land, from the washing of roads, or from elevated springs, are good means of irrigation, and produce increased fertility, except where the soil is of such a character as to prevent the water from passing away, in which case it should be under-drained.

Irrigation was one of the oldest means

of fertility ever used by man, and still continues in great favor wherever its effects have been witnessed.

Mixing Soils.—The mixing of soils is often all that is necessary to render them fertile, and to improve their mechanical condition. For instance, soils deficient in potash, or any other constituent, may have that deficiency supplied, by mixing with them soil containing this constituent in excess.

It is very frequently the case, that such means of improvement are availed of.

While these chemical effects are being produced, there may be an equal improvement in the mechanical character of the soil. Thus stiff clay soils are rendered lighter, and more easily workable, by an admixture of sand, while light blowy sands are compacted, and made more retentive of manure, by a dressing of clay or of muck.

Of course, this cannot be depended on as a sure means of chemical improvement, unless the soils are previously analyzed, so as to know their requirements; but, in a majority of cases, the soil wll be benefited, by mixing with it soil of a different character. It is not always necessary to go to other locations to procure the soil to be applied, as the sub-soil is often very different from the surface soil, and simple deep plowing will suffice, in such cases, to produce the required admixture, by bringing up the earth from below to mingle it with that of a different character at the surface.

Stock Growing at the South.

The importance of devoting more attention than has hitherto been given to this branch of husbandry in all the Southern States, is daily becoming more and more apparent. Intelligent agriculturists at the South are fully alive to the imperative necessity of providing in some way for the renovation of soils naturally fertile, but exhansted by long continued cropping with cotton, or a long succession of any kind of crop. The culture of grasses and the raising of stock is nature's method of renovating the fields impoverished by long tillage, and this mode of treatment will be found for the most part efficient and economical. True, guano and artificial fertilizers may be resorted to, but will they thoroughly renovate the soil? We think it will hardly be claimed that more can be done with the aid of these fertilizers than to maintain a fruitful soil in its present condition. Other means must be resorted to, in order to restore to worn-out lands their lost fertility. The improvement of these by growing stock upon them, instead of being an item of expense, might, in most cases, with proper management, be made a source of profit. It is quite a common mistake to suppose that grasses will not flourish upon good cotton land. True, the clover and herdsgrass of the Northern and Middle States will not flourish in a climate suited to the growth of cotton, but there are other grasses, such as the Kentucky blue grass, that will grow on any good soil, and will flourish on such as are rich in lime; Colonel Stanford's wild oat grass, etc., which will furnish excellent and abundant pasturage upon a great portion of the exhausted cotton lands. That sheep, cattle, horses and mules, can be profitably raised at the South, has been abundantly shown by a vast number of successful experiments, and it is by many claimed that wool can be grown more profitably here than in any other section of the country.

Cotton Crop in North Carolina.

It is said that the cotton crop of North Carolina will be larger this year than ever before, although the drought at one time and the wet now will measurably shorten it. The Washington (N. C.) *Despatch* says:

> Enough has resulted from the experiments of a few years past to settle it as a "fixed fact," that North Carolina henceforth may be set down as a cotton State. The soil and climate of a large portion of the State render the cotton crop the most productive, while added to these the system of composting, marling, limeing and the use of other fertilizers, contribute to make it less liable to the diseases and casualties which so seriously affect it in more Southern States.

The N. C. Planter.

RALEIGH, OCTOBER, 1860.

☞ Subscribers receiving the Planter with a *cross mark* opposite their address, are thereby notified that the No. thus marked closes the time for which they have paid, and unless renewed, the paper will be sent no longer. We earnestly request all who find the cross mark on this No. to promptly forward the money for the Planter another year, and if possible, send another name (or a club) along with it.

The cash in advance plan is now adopted by all the papers of the country, and we believe our subscribers will like it better than the credit system; hence, we have adopted it, and must rigidly adhere to it. No one will therefore feel agrieved when he finds his Planter discontinued, if he neglects to send on money to renew. *All* will be treated alike. We trust, however, all will like us so well, that each will send on his renewal as soon as he sees the *cross mark*.

"The virtues of the sev'ral soils I sing,
Mæcenas, now thy needful succor bring!
O thou! the better part of my renown,
Inspire thy poet, and thy poem crown:
Embark with me, while I new tracts explore,
With flying sails and breezes from the shore:
Not that my song, in such a scanty space,
So large a subject fully can embrace—
Not though I were supplied with iron lungs,
A hundred mouths fill'd with as many tongues:
But steer my vessel with a steady hand,
And coast along the shore in sight of land".

The cultivator of the soil, like those employed in other vocations, has his toils, trials, perplexities, losses and disappointments; nevertheless, his sources of pleasure, comfort, enjoyment and independence are greater and more abundant than those from which others, engaged in any department of industry, can draw. There is a mutual dependence pervading all classes, in the community, the mechanic is dependent on the farmer for his daily bread, the farmer on the other hand has to look to the mechanic for many of his agricultural implements, but none is more independent of the capricious patronage of his fellow-men than the successful cultivator of the soil.—Many engaged in the trades and professions of the day, and we are sorry to record the disreputable fact, are tempted to and do resort to deception and fraud to secure the favorable consideration of the world.—From these injurious influences, the farmer is exempted. The farmer feels and is conscious that he is a member of that class upon which all others are dependent for their success, prosperity, wealth and happiness.

The Agricultural interest constitutes the foundation of our national prosperity, greatness and power. Let this become depressed by any cause whatever, and every other interest or pursuit throughout the length and breadth of the country, languishes, suffers, and soon becomes completely paralized. It nourishes and enriches, feeds and clothes the nation. The land-holders constitute the natural support and defence of the country;—they are its most useful, reliable and permanent citizens. Their interest makes them such. They are fully and completely identified with the general and permanent interests and prosperity of the country. They are attached to their native Soil—ready, willing and able at all times to defend it.—These considerations entitle them to a position in Society, on which few others have any claim. We do not by these reflections intend to disparage the claims of other classes to distinction and preferment; but we cannot refrain from giving it as our opinion, that a well cultivated farm, with all the appurtenances thereunto belonging, well arranged, in good order, with a choice selection of well-fed stock—a comfortable mansion, and other necessary out-houses—a wife, children and friends, presents a paradise on earth, from which many others are expelled and cannot enjoy. Independent of all these earthly felicities to which so many are strangers, when the occupant of such an establishment can look around and say: 'all these are my own, I am lord of all I survey,' his reflections are naturally directed to another and higher source of enjoyment.

When he reflects that the light and heat of the sun, the atmosphere, the fertilizing showers, render his farm productive of the necessaries of life to himself and all around him, his thoughts must often arise in gratitude to and adoration of the Author of all this unbounded benevolence.

If this be so, and no man will undertake to controvert it, one would suppose that Agriculture was the most honored and honorable pursuit in which man could engage. Is it so? Far from it, it is less advanced, less respected, less honored than any of the liberal arts and sciences or pursuits of men; without that lustre which its antiquity, importance, and utility should reflect on it, those triumphs over other sciences of which it is in reality the great embodiment.

Go to Egypt, when she was the mistress of the arts and sciences and trace the history of physical science, to Phœnecai, for the art of navigation and commerce, to Athens for the fine arts, to Rome for the art of war, conquest and civilization; to Europe for the progress of knowledge in every department of learning; return to our own Country, review its rise and progress, and tell me what has been, what is the condition of agriculture, the art of arts and science of sciences, or what has been done for it? In this country at least, it will not bear comparison with other less liberal pursuits. The art of war, horridum bellum, the science of killing men, secundum artem, towers above it; military fame and influence considered superior to it.—And now, in the rapid march of science and art, while literature is being cultivated, whilst we have the benefit of those appliances of civilization brought to bear by Watt, Fulton, Franklin, Morse, Jenner and Jennings, agriculture is slowly bringing up the rear. Why is this? Farmers in this country, like those in many parts of Europe, are not in a state of serfdom and slavery, yet in all matters relating to the interest and advancement of their profession, they are behind the age of improvement. I ask again why is this? It is because the legislation of the country, in its behalf, the management of its interests and necessites has been confided to the hands of those not only ignorant of, but indifferent to them. The people of this country have been represented in their national and State councils, by too many would-be politicians, too few statesmen.

We have at Washington, the national seat of Government, a department of War, and of the Navy, a department in which provision is made to protect mechanical invention and industry, but no department of agriculture. We have a little patent office, from which the members of Congress obtain a thimble full of seed for one in every hundred of their constituents. But the most melancholy fact in the whole history of agriculture is, that many farmers, themselves, are satisfied with their position in rear of all other enterprizes, and seem to think that no further educational facilities, for the promotion of agriculture and its kindred sciences among them, are necessary. I do not envy those, who occupy this position, they are destined to work hard, live poor and die poor, pass the bourne whence no traveler returns, unwept, unsung, without a marble slab on which to inscribe their skill in the science of agriculture. Ignorance never exalted any profession or occupation, labor, without knowledge, has rarely ever been rewarded. In the erection of your State House and lunatic asylum, the splendid specimens of architecture, creditable alike to the liberality and benevolence of the State, are the operators who fitted and prepared the stones for the one, who made the bricks and mortar for the other, entitled to equal credit with the architect, who planned and the master workman who put them up? Such teachings are not only opposed to, but at war with progress, science and improvement. I dare say many of you have heard them from the stump, the hustings and halls of legislation. They are the anecdotes of demagogues, related to exert a pernicious influence over the multitude.

I do not mean to underrate or undervalue the daily laborer, I do not mean to intimate that the hard hands and sunburnt visage of the honest, hard-working farmer are any discredit, on the contrary they are evidences of his industry,sobriety and economy, yet I do mean to say that they are no evidence of superior manhood, confer no dignity of character. They only show the sad condition in which many good and honest men are placed. When these marks signalize any grand achievement in defence of the stars and stripes of their country, they command universal admiration. As well might the beggar point to his rags to excite you to sympathy and charity, as the blacksmith to his sooty and black face for marks of true valour and manhood. It is not the self-made man, that commands the admiration of the world, but the unremitted exertions on his part, performed amidst the disabilities of poverty and the want of an early rudimental education, which entitles him to the commendation of his fellow-men and pre-eminence among them. There is no dignity or superiority belonging to any occupation or profession without a moral and intellectual character of those engaged in it,—Will you tell me why the learned professions, law, physic, and divinity, are held in such high estimation and command the approbation of the intelligent? It is owing to the education, knowledge and talents of those engaged in their successful, prosecution. Why are the pettifoger, pedagogue and shallow-pated pulpit declaimer looked upon with such contempt and derision? It is owing to their ignorance, vanity and arrogance. Why has not the agriculturist assumed, or been assigned a position, a rank in society, equal to that occupied by members of other professions, in point of talents and learning? It is because agriculture has been considered, very erroneously in my opinion, as a very simple art, not requiring much knowledge, no science, to engage in it successfully. Success in law, and physic depends on a knowledge of those sciences; Success, full and complete success in agriculture depends on a knowledge of several sciences, chemistry, botany and geology, and yet strange to tell, that a pursuit as old as the human race itself, embracing a range of science as comprehensive and profound as any to which the mind can be successfully directed, one too, upon which we depend for our support, should, notwithstanding he world's progress in all things, present such a stationary, unimproved, diversified mode and original condition of human naure, rather than affording evidence of the progress of intellect, science and reason, with all the lights reflected by the progress of mind in other less important pursuits.— admit that an ignorant man can plow, plant and cultivate rich land, and realize from his labor and industry a crop sufficient to support him and family, but when this man exhaust's his land by reckless tillage, can he restore it to its original fertility? I deny it. I contend that all human agencies combined, cannot confer upon agriculture, or any other occupation, success, wealth, true dignity, without knowledge, intelligence, mind. Not natural, unimproved mind, but mind, cultivated, trained, enlarged, comprehensive, analyzing, comparing, judging, discriminating mind; tracing effects to their proper cause, judging the future from the past; mind which can course a wider orb than the planets, wander into infinity, and under all circumstances, favorable or otherwise, progress in the acquisition of knowledge to the extent of that improvement of which it is susceptible.

Man without the developement of his intellect, and the cultivation of his mind, never attains to his true dignity. An elegant writer has said: 'The soul is the urn that sprinkles beauty o'er all the universe; the forest and the lake are lovely because the soul hath breathed upon them. 'Tis not the light of the setting sun, nor in the bright beams of morning, that beauty dwells; 'tis in the mind. Sublimity tabernacles not in mountain cliffs, nor in the palaces of thunder; soars not in the wind or rides upon the storm; tis in the thinking soul which lifts it there!' From the mind springs all thought and action, whenever its erergies and divine linaments are exhibited in and directed to any labor, it entitles the man to true dignity, and throws around and over the performance the halo of its own excellence and perfection.—Wherever mind engages in any difficult, laborous pursuit, success always crowns the effort. Mind cannot be buried; animus vincet nomma. And though agriculture may boast her origin in the bowers of paradise, her hoary hairs, her boasted treasures, ample resources, will never entitle her to the respect, much less the honor she claims amid the squalor and sweat of innorance and superstition.

All her wealth, power and resources displayed in her magnificent palaces, splendid equipage, and gorgeous trappings, will only be so many fig leaves to show the shame of her naked and unalleviated deformities from the gaze of enlightened and cultivated humanity. Why then is agricultural labor, honest and honorable labor,by which the world is fed and clothed, and upon which all other pursuits are dependent, held in such low estimation, derided and sneered at by the knights of the quill, the sleek, fat overgrown Lords of the spinning jennies ?

Why is not the farmer seen oftener in the Halls of Legislation, on the bench, administrating the law and justice to his fellow creatures ? Because he is unable to do his own business, for the want of scientific knowledge, and like the priest-ridden poor devil, whose spiritual quiet saves him from this labor, and in the acknowledgment of his own inability confides it to the hands of those more incompetent than himself. This unenviable condition of the farmer is not incompatible with his intellectual calibre. As long as he is satisfied with this position, having no aspirations for any thing above it, intellectual inferiority will remain his badge of distinction. Homer, Virgil, Byron, Campbell and other poets may lend their aid in describing scenes of grandeur, beauty and sublimity, and after exhibiting, painting and portraying all that is magnificent, noble and ennobling on earth, direct his attention to the contemplation of celestial things,the sun moon and stars, the wonderful revolution of comets, as so many refulgent messengers by day and by night, by years and cycles, but as he looks and gazes utterly unable to comprehend this phenomena, or whistles come out of the wilderness, as more cheering to his benighted soul, than these lessons in astronomy. The beauties and productions of the earth, the teachings of heaven and the horrors of the infernal regions, interest nor move him, and he has nothing to cheer and animate him, to lighten and alleviate the burdens and sorrows of life, but the jingling of his earthly treasure, and calculating the probability of additional acquisition.

This picture will answer for the portrait of many in the agricultural world.—Are you, gentlemen, willing to be estimated by such a standard ? I presume not; then you must exert the noblest energies of body and mind, to improve the agriculture of your country, reduce it to a science, demand of your legislature a Professorship in your university to instruct your sons in the principles of this noble science, a science by which the population of the world is sustained. See here, Proff. Leebex in a recent letter addressed to an eminent English farmer, shows that the grain producing power of the civilized, cultivated countries of the globe, is rapidly becoming exhausted. This is owing to the continued extraction from the soil of the elements of productiveness, without a suffecerent at their restoration. If the present state of agriculture is persisted in, the Malthusion theory must be exemplified. Bear in mind, gentlemen, that the population of this country in fifty years from now, according to the present ratio, will be one hundred millions. The productions of the earth must bear a proportionate increase, or suffering and starvation will be the result.

The scientific farmer, or he who makes two blades of grass, two ears of corn grow, where only one grew before, should be considered a benefactor of the human family. Away then with your homage to wealth, with your estimation of man by the size of his purse. Is money a fair eqivalent for noble deeds and achieve-, ments ? Will it compensate the soldier who has fought and bled for his country ? Will it reward the labors and exertions of those who have honored and blessed the world ? Was it for money that the literatii of the world have labored and toiled over the midnight lamp to enlighten mankind ? Was it for this that our fathers signed the declaration of independence and pledged their lives, their fortunes and sacred honors in behalf of human rights ?—Was it for this that Washington made himself the father of his country ? Was it for this that Lafayette left his all, crossed the boisterous ocean and came to our assistance ? No, filthy lucre never stimulated the spirit of man to the performance of any deed for the benefit of mankind in any age or country. And yet I am constrained to declare that pecuniary considerations influence a large proportion of those engaged in agricultural and other pursuits.

Such reward never can exert and secure the best energies of the mind, the unremitted labors of the body. In whatever age or country, money shall be the grand moving, stimulating, victalizing, galvanizing power, the splendour of its achiev—

ments will never command the respect and admiration of the world.

You might as well undertake to excite the admiration of the Northern for our Southern Institutions, the charity of a miser, the benevolence of a misanthrope, as to move and direct the true, noble human heart by money. You might as well undertake to clip the wings of genius and confine it by the chains of ignorance, as to think of moving and controling the ennobling energies of the human heart by such paltry considerations. But is not this consideration one of the most serious impediments to progress and improvement in agriculture? I contend that the occupation of the enlightened and scientific agriculturists should not be a daily routine of business, but should otherwise be a source of intellectual improvement and enjoyment. The farmer should not be merely a hand, on his farm, a ploughman, but should labor daily to improve himself in his vocation and make himself a master of a science, and thereby raise himself to the rank of a legislator, or statesmen. He will then no longer occupy a position inferior to that of other industrious classes, but will be able to resist and overcome all opposition to his elevation in society. The farmers are entitled to rule and direct the affairs of the country; to do this they must be educated; intellect and intelligence will govern, and if agriculture has any hopes of the dawn of a brighter day, or a higher standard of excellence attached to it; it is from the same which has shed a constantly increasing lustre over other industrious pursuits.

Preparation of Food.

There are some important general principles involved in the preparation of food, which demand our attention. Economy in feeding requires not only the right kind of food, but also such preparation as will give that food its greatest value. It must be in such condition that the animals to be fed will relish it—that they will consume it entirely without waste—and that it shall all be digested, and thus fitted for the purposes it is intended to serve.—We often see provender rejected by cattle, because its condition is that of coarse dry, hard stalks, or straw, difficult to masticate, and often insipid when eaten alone.—Again we see the choice portions of hay picked out by horses, and the remainder pulled down and trodden under their feet. Then we often find whole grain passed through animals; as may be seen in the droppings of cattle when fed on unground corn, or of horses, when fed on unground oats. To avoid such waste we must give attention to the most economical means of reducing provender to the best condition. The means best adapted to the preparation of food are *cutting*, *grinding*, *mixing*, *boiling*, or *steaming* and *fermenting*.

Cutting aids both mastication and digestion. Portions of the coarser kinds of dry provender, such as straw, fodder, and hay, are oftened rejected, as above stated, on account of the difficulty of chewing them; and while the more tender parts are selected, others equally nutritious are trodden down and wasted. But if the whole mass is cut into small fragments, a great part of the difficulty of mastication is removed, and the consumption is more complete.

In connection with the question of cutting such substances as straw and fodder, another question of importance arises:—"Will it pay" to expend the necessary labor! This must be decided by the circumstances of the case. If the farmer has a great deal more straw and fodder than his stock can consume, and wishes to use the excess as litter for absorbing liquid manure, he may not find any economy in cutting. And even in the case of feeding hay, if the supply is abundant, and the price low, as is frequently the case in the grass-growing regions of Western N. C., it may be more economical to feed it whole with considerable waste, than to expend on it the labor necessary to cut it up.—But in sections of country where such provender is scarce, or where there is a sufficient demand for it to keep up the price, good "cutters' may be among the most economical implements about the farm, and they are no less important in towns and cities where horses and cows are fed at considerable cost.

If a farmer is near to a good market, at which he is certain of realizing a liberal price for his straw, hay, and fodder, his object should be to secure a large surplus of these articles. In order to do this he must prepare whatever part is thrown to his farm-stock in such a way that it shall be entirely consumed. Then, in towns and cities where provender is costly, it is equally important to make every particle effective as far as it can be done. In such cases all long forage should be well cut.

Grinding sustains very much the same relation to grain, that cutting it does to long forage; but as it is more readily transported than other products of the farm, economy in its use becomes more generally important. Grinding is thought by many experienced feeders to add from 20 to 30 per cent. to the nutritive value of grain when fed to hogs a cow masticates grain much less completely than either the hog or the horse. In autumn, before corn has become hard, there is but little advantage in grinding for hogs.

Mixing may be added to cutting and grinding with great advantage. When horses or cows are fed on any kind of long forage (hay, straw, fodder, or even shucks), together with meal or bran, the former should be finely cut, and the latter mixed with it—water enough being added to moisten the whole mass. There will then the double advantage arise, of having the whole completely eaten up, without waste, and more perfectly masticated and digested, than if fed separately. A similar advantage arises from cutting beets, turnips, pumpkins, etc. and mixing them with meal.

In localities remote from the sea-shore, where vegetation affords too little of the salts of *soda*, to supply the demands of the animal's fluids, common salt should be mixed with the food, or else a supply of it kept in a sheltered place, so that stock can get it when they want it. It may be conveniently mingled with food, and at the same time rendered more acceptable to stock, by being sprinkled over hay and straw as they are stacked or packed away in barns. There is generally moisture enough present to absorb the salt completely. From four to six quarts on a ton of hay will greatly improve its quality, and aid in its preservation. A small quantity of salt is beneficial to hogs, if given regularly; but large doses are very poisonous.

Boiling and *steaming* render substances generally more soluble, and in that way promote digestion. Steaming has been profitably applied to hay, when fed to young aminals, and to sheep, whether old or young. Green grass is more valuable than the hay made from it. In making hay there are changes produced in the stalks and blades, partly physical and partly chemical. Among these changes is the great insolubility of the fibre. This makes it more indigestible. Steaming reduces it back to a condition somewhat similar to that of green grass. Boiling may be applied to grain, either whole or when ground. It renders the starch more soluble; and if, in the case of meal, a slight fermentation is produced before boiling, a large portion of the starch to *dextrine*. This is one of the steps in the progress of digestion, already made. When whole grain has been boiled, it is more easily masticated, as well as more easily and completely digested. *Roots* should generally be boiled or steamed.*

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*We prefer the steaming process.—Ed.

Drouth in Texas——How to Make Corn in Dry Seasons, &c.

Editors Southern Cultivator—Taking a permanent and lively interest in your valuable and interesting journal, and being disposed to give as well as receive any and all information which may be conducive to the planting interest of the South, I therefore herewith enclose you clippings from the Galveston *News*, which are extracts from the press of various portions of the State of Texas, exhibiting the most deplorable prospect for a Corn crop which has ever occurred since I have been in the State, (being one fourth of a century) Yet the picture thus presented is not over-painted—nor even half drawn—it is a mere outline of the desolation which reigns throughout the State. This county, Harrison, which is by far the wealthiest and the greatest Corn and Cotton producing county in the State, will not average one bushel of Corn to the acre, when an average crop is twenty bushels at least — With the exception of some five or six counties North and North-west of this, and two or three on the coast, this county will be a fair criterion to judge the product of the one hundred and sixteen organized counties in the State. The present drouth has existed here since the 24th of April, and in many places much longer. During most of the time the atmosphere has been extremely dry and hot, with a constant South and South-western *sirocco* blowing during the heat of the day, parching and withering vegetation wherever it strikes it, causing the mercury to rise daily from 96 to 101 deg. at three o'clock P. M., in the shade.

I give these facts, believing you will publish them, as I see many persons contemplate moving to Texas this fall; if so they had better bring their breadstuffs with them if they do not want to be gulled, for I extend them frankly the 'golden rule,' hoping they may profit thereby; although I may lose pecuniarily, having land for sale in different portions of the State.

Now, sirs, the great question is not how to avoid the drouth, but how to make Corn hereafter in a drouth? I think I can answer it satisfactorily, as I profess to be a practical farmer, (notwithstanding some of my neighbors have honored me with the title of 'book' farmer.) Therefore I may be listened to attentively, if not heeded implicity, and if any one can give a better plan to raise Corn in a drouth, I shall be under great obligations to him. What I write I have practiced, and it is the result of one out of many experiments made this year, which I think will do to rely upon, for, as I before stated, this is thus far the dryest and hottest year we have had since 1834, in Texas. You truly remark, in the July number of the *Cultivator*, 'that an increased depth of one inch plowing throughout the United States, would produce a larger amounts of profits, as compared with present results, than all the gold from California.' If this is true, what would two or three inches deeper plowing produce? Who can tell?

But I will tell you how I have made 20 or 25 bushels of Corn on poor upland this year, without sufficient rain, since it was planted to set out potato slips. This Corn was planted, about the first of May, and is now in good roasting ears, while my oldest corn, and main crop, was planted on the first of March. Both pieces were subsoiled, manured and well cultivated; the latter was planted on a bed subsoiled about 11 inches deep and two feet wide immediately under the Corn, and a handful of well rotted Cotton seed dropped on ach side of the Corn, or rather the seed was dropped in the furrow on top of the bed first, and then the Corn dropped between each handful. This grew off remarkable well, although the land had been in cultivation for 20 years successively, and in the opinion of good judges would have made thirty-five or forty bushels per acre, had the drouth not affected it so seriously—now I do not think it will make more than 5 or 6 bushels per acre. But this is mere speculation, and showing you how I did not make Corn. The plan by which I did make Corn was this: I bedded out 5 feet wide, and as deep as I could with a Hale and Speer Plow, early in February, the last furrow breaking out the centre furrow clean and deep. I then had a half shovel, 8 inches wide, with a sharp coulter before it, run in the same furrow. Thus I succeeded in breaking the land at least 12 inches deep, below the surface—It remained thus till about the first of May, when I had stable manure scattered along the furrow; a heavy list was then thrown on the manure, opened with a scooter, planted 3½ feet apart and covered with a harrow. When the Corn was up 3 or 4 inches high, it was run around with a side harrow, which threw a considerable soil to the young Corn, and it was several inches below the surface; next, when knee high, it was plowed over with a three tooth harrow, as before, only the teeth are broader and longer, the soil broke deeper, and more thrown to the Corn than before.—The third and last plowing was with a Hall and Spear Plow, when the Corn was about waist high. The middles were then broken out for the first time, and throwing as much soil as possible to the Corn, which elevated the bed but little above a level. This was all the work it had—the crop is made and without a rain since it was planted. The drouth still continues and the mercury stands at 106 deg. (13th of July) in the shade. This piece has produced at least 20 bushels per acre, and had it been planted when my main crop was, I have no doubt but it would have made one-third more.

Now, sir, I think I have given you, and through you, the planters of the South, information worth millions in the aggregate, if acted on in another year like this, and should it not prove so dry, I still think it will make good Corn. The only return I ask of you or your numerous readers for this information, is to inform me where I can get a Mill for culling Cotton Seed, and compressing or grinding them for the purpose of making oil and oil cake, as I have long since been convinced that Cotton Seed, if properly managed, will give two-thirds of the value of the nett Cotton.

W. R. D. WARD.

From the Franklin Observer.

FRANKLIN, Macon Co., N, C.,
24th August, 1860.

F. G. Cary, *Vice President of the Ag. Society of the T. S.*:—Dear Sir :—I much regret that it will be out of my power to attend your Society's exhibition commencing on the 12th Sept., proximo. It was my ardent wish on that occasion to have responded to that part of your invitatory circular requesting visitors to bring with them for exhibition whatsoever might add to the interest of the occasion. The article which I proposed contributing, and emphatically calling attention to, is a paper explanatory of a new philosophic discovery made by myself, a knowledge of which carried out can, and I confidently say will be turned to purposes of utility in the U. States amounting to millions of dollars.

The philosophy of my discovery establishes beyond controversy the fact that the atmosphere, when ever at repose, and not agitated by strong currents of wind, resolves itself into a series of strata, one lying above and upon another, taking their respective position according to their weight and density, the most dense and ponderous becoming the base of the succeeding series above it, and the entire stratic formation being governed by the infallible laws of gravitation.

Heat is the agent that produces this atmospheric stratification. The Earth's heat is from two sources—internal and the rays of the Sun. This heat Earth's surface is ever casting off by radiation, and being light and dry in its nature, is consequently buoyant and rushes up through the heavy, damp atmosphere immediately above it like cork in warter, bearing from it its caloric and leaving a vacuum intensely cold ; and into this vacuum rushes and is filled by the heavy, humid atmophere and its vapor is immediately froze into frost particles, and hence is accounted for the welknown fact that the very lowest points in a valley are ever subject to the most killing frost. This radiated heap keeps on mounting upward until it reaches a region of atmosphere too light to support its further progress (like cork on reaching the surface of the water can then mount no further) and consequently has to stop and form a Thermal stratum upon the top of the lower damp, heavy stratum ; on this it rests upon a horizontal line, which line of junction is 300 feet above the bottoms of the valleys, and then the Thermal stratum is 400 feet deep vertical height before it reaches a frigid stratum above it and having its limits so well defined that a shrub upon the lines of junction will have on one section of its leaves killed and blackened by frost, and leaves on the other half remain fresh and green, as is the most tender vegetation throughout the entire limits of the Thermal stratum, and the fact is now well established according to the memory of our oldest citizens that within the above defined limits of the Thermal stratum fruit trees of all kinds have never yet had their young fruit germs frost killed, though there has been known a few instances where they have perished from a freeze in times of hard, cold winds when the stratic arrangement was disorganized : but in all this while for the last 28 consecutive years this important fact is well established——The Isabella, one of the most weakly constituted of the whole Grape family, in all the locations where it is found growing within the range of the Thermal stratum has each year in all this while produced its fruit in the most luxuriant perfection, while not the first vine of the same variety of Grape growing below that stratum's line and not under cover but has its fruit blighted before reaching maturity. If these statements should be doubted, I refer you for their confirmation to two of our representatives in Congress, both living at Asheville—the Hon. Z. B. Vance, of the House of Representatives, and Hon. T. L. Clingman, of the U. States Senate.

Permit me, dear sir, to say a few words in relation to the antecedents of the vine in some of the most persevering attempts to cultivate it at the South. The late Samuel Mavericks, one of S. Carolina's most wealthy and energetic citizens, in a 20 years' persevering effort at its profitable culture, informed me that he sunk 40,000 dollars. A 10 years' effort on a more humble plan convinced me that the Grape would not pay as a branch of labor in the humid valleys of the South, and unfortunately, at that time I was ignorant, as were all men, of the existence of a "Thermal stratum." It is within the limits of a warm, dry, balmy air that the thin-skinned, tender and valuable varieties of our Grapes are destined to find their true home, where, fanned into fecundity by its soft, gentle zephyrs, the Grape will never fail to yield to the husbandman a rich and abundant crop of its luscious and heart-cheering fruit; and had the vine locomotion, corporal and mental sense, I would bid it to "Tarry not in all the plains; but flee to the mountains for its life," and take refuge under the protection of the Thermal Stratum!

The field of Thought has its conquests and its honors as well as that of physical force, and I will here request all literary impyrests who hide while the battle is progressing and after the victory is won, then like Falstaff, rush upon the field in search of the body of a Hotspur—I say to all such, please let my Thermal belt alone, or if you handle it, fail not to refer it to its proper owner! With due respects for the Honorable Society and you its officer, I beg leave to subscribe myself your humble servant,

SILAS McDOWELL.

Cherryville—Rich Lands, &c.

CHERRYVILLE, N. C., Aug. 16, 1860.

Dear Dispatch:—Though much has been said of the *rich lands* in this vicinity and lying on Bay River, yet, I am satisfied, that much remains to be said. Their productiveness is unquestionably very great, and their durability equal to their productiveness. The soil is from a few inches to and 8 feet deep. Underlying this, in nearly the entire body, so far at least as it has been examined, there is a stratum of red marl clay from 6 to 18 inches thick, and then under this in many places a stratum of blue marl clay about the same thickness, and under all, shell marl in various stages of decomposition. Now must not such land be very fertile and almost inexhaustible? Why, the clay itself would enrich the most of the land tilled in North Carolina, and, indeed, anywhere else. I have seen very large fine corn grow right on the crest of a ridge of this clay thrown out of a ditch. The timber is cypress, gum, poplar, ashe, beach, oak, hornbeam, &c.—The prevailing growth is gum, in some places mostly sweet, in others, mostly black gum.

These lands are finely situated for draining. They lie on and between streams that have several feet fall per mile and are elevated several feet above them. They are, for this country, elevated low lands, or *table lands*. Ditching is comparatively easy and cheap. From $2 to $2,50 per acre, I am assured, will thorougly drain them. A good hand will cut down and prepare for burning off ¼ of an acre per day—6 acres per month. The amount may vary somewhat in different sections. All the growth is felled *pell-mell*, exceed the very largest, and left just so for the fire. No mattock is used, nor indeed is it necessary. In May or the first of June everything is burnt off that will burn, and the corn planted with a hoe; or "*stuck*" as it is generally called and done. No plow is used. Two choppings out with a hoe, which does not require much care or labor, is all the attention and labor necessary to make the crop. The yield is generally owing to the "good" or "bad" burn and the time of the first chopping out, but it is generally from five to 10 bbls. per acre. The average, I think, with anything like a good burn, is about 40 bushels per acre. I have seen some that gathered 50. Now where can you find land that can be drained and cleared and cultivated so cheaply, that will compare with this in productivenes? Indeed, I would rather drain and clear and cultivate an acre of this land, than an acre of common piney-wood's land. And yet in productiveness how great the difference! And these lands *will* wear first-rate. Malachi Potter, Esq., has some in corn this year which has been in corn every year for 6 or 7 years,—I think this is the 7th year—and the yield, I think, cannot be excelled in North Carolina, nor perhaps, in the Union. A number of gentlemen who have seen it, and they are judges, having seen the finest corn in other sections, pronounce it to be number 1, and some say the best they ever saw. It is generally believed that it will yield 100 bushels per acre. This land lies at the head of one prong of Bay River, about 3½ miles from Jackson. But I can point on thousands of acres that will yield, under good, judicious tillage, for an indefinite time —a lifetime if you please—from 40 to 100 bushels per acre. Ye farmers of North Carolina, who look to the west, come and see it, come and try it.

These lands are now selling at $6, $7,50 and up to $10 per acre. What a chance to invest most profitably? Why *should* the farmers of North Carolina go to Texas? These lands are better, better located, and in the "Old North State." And as to health, I am fully persuaded that it is better than Texas—healthier. Why, here on the Neuse *it* is *very healthy*. But let the reader come and see.

I would refer the reader, who has any concern to purchase the best lands in the State, and open as cheaply as anywhere else a number one farm, to S. Chadwick, S. Whitehurst, Wm. E. Ferebee, Esqs., Dr. J. P. Tedding and Rev. C. P. Jones, Bay River P. O., Craven Co.

The health of this place and vicinity is now very good. The population numbers hundreds—I mean in the entire neighborhood, and the nearest Physician is 10 miles off. Fish abound; the breezes are generally refreshing. The rain for 6 or 8 days has fallen in torrents; and yet we are "high and dry." FIDES.

Our Trip to Buncombe.

During our recent trip to the French Broad Valley, we spent some time in Buncombe. That, the oldest settled county west of the Blue Ridge, has greatly improved in many respects within the past few years.—It used to be celebrated for rowdyism and was in former days notorious for its pugilistic bullies. Those days have passed away, and Buncombe now justly boasts a sober and moral community, and can claim as intelligent a yeomanry as any other section equally as remote from commerce and railway facilities. Much of this is due to the principles of the great Temperance cause; and it is due to the Temperance men of Buncombe to say, that they remain active and zealous, ever pressing the claims of sobriety and abstinence. If they should continue to do so for a series of years, it will tell still more favorably upon other generations. Our observation has resulted in the conclusion that most of the drunkenness in that old county is confined to a few lawyers and politicians and their respective satelites. If the sober men of the county, who wish to raise their sons free from temptation to drunkenness, will but act consistently and show drunken lawyers and politicians no countenance, the work is done. But if on the contrary, they advocate Temperance principles and then uphold drunkards, the inconsistency will inevitably ruin the Temperance cause.—We would be glad to live to see the day when temperance men will all be true to the cause of morality and general sobriety. It will be a great day for all that is noble and good, and can exert any influence in the elevation of mankind.

While in Buncombe, we were upon the mountain farms of Messrs. N. W. and Jno. W. Woodfin. They have respectively a large body of mountain summit and slope in cultivation; and laid down to grass.—These gentlemen have demonstrated that some of the mountain lands of Buncombe are susceptible of a fine yield of corn, and may be made remunerative. Those lands are on the Gneiss and Mica slate system of rocks. I observed a difference in the growing crops upon the Gneiss strata and the Micacious strata. The growth of corn upon the Gneiss beds is evidently more vigorous and promises a heavier yield than that on the Micacious beds.—This is owing to the greater amount of calcarious matter in the soil furnished by the disintegration of the Gneiss rock. The Gneiss which passes through their lands is very rich in feldspar. Add to this, the fact that on the North sides of the mountains, the disintegration is more rapid on account of the greater freezes, and that the vegetable matter is not burned off so frequently, nor scorched by the hot sun and carried off by our heavy Southerly and Westerly winds, and we have a reason for the greater richness of the North grounds. The Messrs. Woodfin have perhaps, an hundred acres in corn, upon their mountains that will yield forty bushels per acre. Their mountain land also produces Red Clover, Orchard Grass and Timothy admirably. We saw there Timothy five feet high. The Orchard Grass and Red Clover sown for grazing was fine, and one acre is worth for grazing stock, a great many acres of wild range.

In passing over the mountain, when we

reached Mr. J. W. Woodfin's premises, we were much pleased with his fine blooded stock. He has taken much pains, and at considerable expense has stocked his excellent grazing lands with thorough Ayershire and Devon cattle. He has several superior young bulls of this stock for sale. We were struck with the fine condition of Mr. Woodfin's stock in the midst of the severe drouth that well nigh destroyed the wild range in the mountains. A few weeks previous to this trip, we saw his milch cattle of the same stock, and came nearer violating our christian duty than often falls to our lot, by coveting some of his choicest milch cows. With such cows as Mr. Woodfin raises, and the superior grazing lands upon his mountains, it seems to us that the manufacture of cheese might be made quite profitable.

The day will come when these rich mountains will be covered with herds of fine and well bred cattle and flocks of thorough bred sheep. Then will not Switzerland be superior to the 'United States of Buncombe,' and the old North will be proud of her west. Let the Iron horse come whizzing through to the extreme west, and old Rip will shake off her mantle and stand out among her sisters in flame of light.

One other thing that impressed us favorably while in Buncombe, was the increasing favor in the public mind, manifested towards the Western Extension route to Duck Town. Every dispassionate North Carolinian must see that as a State Enterprize, Duck Town is the proper terminus for Western Extestion; and it is gratifying to all who look to the future interest and greatness of the State, to find this idea gaining favor so rapidly in every section.—North Carolina has her destiny in her own hands, and this enterprize when pushed through to link her with the Great West by the Copper belts of Duck Town, will crown that destiny with glory and honor!

Franklin N. C. Observer.

* * *

ACTIONS AND STUDIES.—Many of our actions and studies are like our transient acquaintainces—a kind word, a look, a thought, and then adieu and off the mind forever.

Advantages of the Drill in Seeding Grain over Broadcast Sowing.

The experience of the farmers of England, and other portions of Europe, in the seed of small grain, has long since established the advantages of this method of seeding. Indeed, the English farmers are not satisfied with the great advantages of the drill over broadcast sowing, but they even go to the still greater expense of dibbling in the seed by hand, in order to secure greater uniformity in the depth and manner of depositing the seed. But in our country the low price of land and the scarcity of labor require that we should adopt some more expeditious method of seeding, and at the same time secure the greatest possible benefits, over the primitive method of scattering the seed promiscuously over the land, without regard to depth or distance.

In broadcast sowing one-eighth to one quarter of the seed is lost by being either covered too deep, or by not being covered at all, and liable to be picked up and devoured by birds, &c., before it begins to vegetate. Seed deposited so irregularly, exposes the plants to injury from drought, as well as to the action of frost in heaving the roots out in winter. The various improvements made in the grain drill have rendered it quite perfect, so much so that any required quantity of seed may be dropped upon an acre, and at the same time at a uniform depth. The action of the drill upon the land leaves the ground in the best possible condition to protect the crop during winter from the washing rains and the injurous action of frost. Running the drills north and south, when practicable, secures another great advantage in giving free access of sun and air, and thus in a great degree checking the tendency to rust.

Besides the saving in the amount of seed sown, it has been ascertained that on most lands the driiled wheat will yield from three to five and more bushels per acre over that which is sowed broadcast in similar soil. Take the number of acres of land sown to wheat in any one State, and estimate the gain by this method of seeding, and it will amount to millions of doldollars anually, enough to purchase a drill for every farmer in the State, and then leave a large surplus besides.

Among the many improvements recently made in the grain drill, we cannot recommend one over another. But it is better to buy a good one, at almost any cost, than to receive a poor one as a gift, and so of any other implement or machine.—We might have said in order to use the drill, with sueceas, the land must be well prepared, and all the weeds and rubbish must be turned under, below the action of the drills. A thorough preparation of this kind more than pays for the labor bestowed, in other respects.

Every farmer who has ten acres of land to sow, would do well to secure a good drill in time for the coming fall.

Valley Farmer.

Winter Oats.

Editors Southern Cultivator.—I am not one of those who are accustomed to writing for the sake of seeing my name in print, and am an earnest hater of humbugs and humbugers. Being a planter myself and feeling a deep interest in the success of this noble calling, I feel it my duty to call the notice of the planting public to a new variety of Winter oats which has been introduced in our neighborhood recently. They are a large white oat, growing from six inches to one foot taller than the common varieties. and the head correspondingly heavy. They can be sown either in the fall or spring; and produce from one half to as much again as any other kind I can sow. When sowed in the fall half a stand will make more than a good stand of other kinds. I have the Black Egyptian Oats and several kinds of spring oats, and think I speak advisedly in what I have said. I shall throw away every other kind and so every man who has sowed them in this neighborhood informs me they will do. I have a bunch grown from one root which has one hundred and seventy-one stems. It is worthy of remark that they are the only oats that have escaped the rust this season. I have them sowed both in the winter and spring—both escaped the rust; and while others who have sowed the common varieties of oats have made almost a total failure, I have an unusually fine crop of this kind.

We call them here the Jones Oats, from the fact that they were introduced into this neighborhood by a Mr. Stephen Jones, from Virginia. I will supply any who may desire to make a trial of them for the next season at one dollar a bushel. When sacked up and sent to the railroad, the purchaser must pay me for sacks, freight, &c., extra. I can suply to the extent of several hundred bushels, and am engaging them rapidly in my own neighborhood where they are known. They should be sowed to make the heaviest yield about October or November in this climate—one bushel to the acre. If you think this worth a publication, put it in the next number of the Cultivator, and oblige,

Yours truly,
P. W. HUTCHISON, Jr.
Watkinsville, Ga.

The State Fair.

On the 16th, the Seventh Annual Exhibition and Fair of the North Carolina State Agricultural Society will begin. We cannot let this opportunity pass without giving the farmers and mechanics, and working people of North Carolina, (and that means all of you, for, thank God, we have but few drones among us,) by no means forgetting our fair State women, a jog of your elbows in regard to it. It is emphatically and pre-eminently your festival, and we hope all of you who can do it consistently with more pressing duties and engagements at home, will come out to enjoy it, and not only come out, but bring specimens of your handy-work—products of your industry and skill in whatever department it may have been exercised by way of testimonial of your own industry.—Come, too, with an honest and enquiring mind, willing to see and learn and improve by what you find new and meritorious in others, and willing to impart freely whatever your own experience has gained that will be useful to others. This is one of the great uses of such associations and of such gatherings—mutual improvement, mutual encouragement, united concert of action in elevating and sustaining each other, and thereby the State, higher and higher in the scale of social life, and true independent power and greatness. In these matters, small things should not be neglected or despised, or great things considered too magnificent or sacred to be brought into the work. Everything, from a button to a steam engine can be brought into action, and each fulfill its part in making up the completion and harmonious action of the great social machinery of life.

All things will be ready for your reception. The ground and the stalls and the halls are fitted up with a careful study to accomodate exhibitors in the best posible manner, and the railroad Superintendents will make liberal deductions in the rates of fare, and to give everybody and his wife easy conveyance to and from Raleigh during the week.

We anticipate a good Show and a happy time, and hope you will all be there to enjoy it.

Horticulture.

Orchard—Fall Planting.

We would suggest to our readers the propriety of getting all things in readiness for planting their Orchards in the Fall. for the following reasons: First, we designate November as the proper month, and the second week in said month as early enough, unless we should have a very early fall; if planted earlier, or rather we should say trees taken up before November, are liable to shrivel, and after planting, it will be observed they die back to where the wood is more fully matured; and purchasers should remember, that in most cases, trees are taken up a week, more or less, before they get them, and if they are taken up before the wood is properly matured, the effect will be as stated above, and of course disappointment follows.—Trees planted in November take root immediately after planting, although the buds do not swell or show any indications of growth, yet, the roots push forth, and the trees get thoroughly established before severe cold weather sets in; in spring they push forth strong vigorous shoots, and the drouth the following summer does not affect them, as it does spring–planted trees. No deciduous tree should be planted without being cut back to a strong bud. We know some cultivators object to this, but no practical scientific man will omit this, what we call an indispensable operation.

Trees when newly planted and headed back, grow more, grow stronger, and make finer trees every way than those not treated in this manner. It should always be remembered, that in taking up trees, they lose fully one–third of their roots, and if not carefully taken up, sometimes more.—Taking this into consideration, how is it possible for a tree, which has lost one-third of its roots and moved to a new situation, to support the same amount of head it did previous to its removal, with all its roots? In young apples, for instance, we would, if six feet high, or five, shorten it to four feet. By doing this, it throws what strength it has into the two top buds, which push forth and grow much more rapidly than a tree not thus treated. We invite our Amateurs to make a trial of this, and if we take the wrong position, and advise them to do things that is not really beneficial, why show us up in public print; don't spare us at all; we ask no quarters.

Never plant any but thrifty trees, and be sure you obtain Southern varieties.—After planting, if you can spare the time, put a stake to each tree, at an angle of 45 degrees, place it so it holds the tree perfectly upright, and brace it against the South-west, as it is from here we get such severe winds, that blow them to one side, and if not attended to, grow in a leaning position, not only becoming unsightly, but exposing the trunks of the trees to full action of the sun's rays in summer, which eventually destroys them. We wish our readers to understand the North pole has no more attraction for orchard trees than a brick wall, one writer to the contrary notwithstanding.

When spring opens, if it can be done, mulch every tree. It does not matter so much what you use, so it is something to retain moisture, and prevent too rapid evaporation. As to distance of planting in soils favorable to the apple, we would advise (the trees we are now speaking of are apple) forty feet apart, each way, and a row of peach trees between, which would place them twenty feet each way. By the time the apples need the room, the peaches will be worn out, if budded on the peach stock, and it is very rare we see them budded on the plum, which is so much longer lived.

Peach trees, when planted between apples, should be kept cut back, whenever they encroach on the space required for the apple. By all means keep them clear of weeds, and bear in mind the holes should be well prepared, by mixing compost with the natural soil; no fear of the trees growing too strong when young. We have been repeatedly asked what kinds of apples are best to sell, and for winter use? In the subjoined article we give the names of those kinds which sell most readily, and are good keepers, also productive.

W. H. HAMILTON.

APPLES.

For the benefit of our readers, we give the following half dozen kinds of apples, as the most suitable to grow for market, viz: Clark's Winter Pearmain, Matamuskeet (keeps till May.) Pryor's Red, Romanite Vandevere Real, and Winesap.—These are fine, red, showy Apples. Now for our reasons for recommending them: we have closely noticed in large cities and small ones too, that red, fine looking apples, sold more rapidly than apples of a lighter complexion, though they may be equally good, in fact better. Appearance in apples, as in many other things, is of the first importance, for we must remember there are very few Pomologists among the millions. We must remind our readers that when we selected the above kinds, we had reference to our Southern kinds. Apples in the North, under the same name, would in all propability prove entirely worthless here; they are all winter kinds; fall and summer apples being perfectly worthless, as they cannot be sent any distance to market without severe loss. It is useless to have a quantity of apples in market, when the proceeds from the sale will scarcely defray the expenses attending market.

A friend at our elbow complains that we have not enumerated the Hall. We have omitted this kind, because it is too small in size, and too large in heart—two faults hard to meet with in the genus homo; and then the purchaser declares he ought to have two dozen such little things as they are, for twenty five cents. But, says our friend, 'this kind would be esteemed in Europe as a delicious table apple.' We admit that, but fashion in Europe has such a small mouth, she can't possibly stick her teeth in a fine, rosy, healthy-looking republican apple. If they need such small, delicate varieties, that is no reason we are to follow suit, merely because it is European fashion. We trust our friends who plant trees for remuneration, will use these six Winter kinds, as we know them to be what we say, the best for the purpose,

We expect our Nurserymen will be down on us in a short time, because we have recommended these over their extensive assortments. Well, gentlemen, pitch into us; we do not advise the amateur or family orchardist to plant only these kinds; we recommend them solely to bring in the almighty dollar to the planter.

W. H. HAMILTON.

Packing Apples in Leaves.

A few years ago Mr. J. W. Boynton of East Hartford, while gathering up the leaves under an apple tree, observed under them a few fresh unfrozen apples. It suggested at once that dry leaves would answer well as packing material for fruit, and the next fall, and every season since he has used them for this purpose. We saw a few days ago some specimens thus preserved, seemingly as fresh and piquant in flavor as when first gathered, yet he assured us that they were varieties that would have decayed months ago if unprotected. His plan is to tick the apples carefully at the proper time, but not to pack them until the forest leaves are perfectly dry and the weather quite cool. Then the apples and leaves are packed in alternate layers, and the last layers of leaves crowded in as close as possible by placing any convenient weight on the cover of the barrel. The leaves are of such elasticity that the whole may be compressed so tightly as to prevent all shucking, &c, and yet not bruise the apples in the slightest degree. In this latitude Mr. Boynton has never found it necessary to keep these barrels of fruit in any place warmer than an open shed. I would be advisable of course, everywhere to keep them in as cool a place as possible. In the spring they are to be removed to a cool, airy cellar or to an apartment, especially for fruit, in connection with the ice-house.—*Homestead*

For the Ladies.

The Loves of Flowers.

It being hinted to us (under the rose) that every preparation had been made for an extensive meeting of various kinds of lovely flowers, of every shade of color and beauty, we prepared ourself for the task of reporting the doings and sayings of the different beauties whom we understood would be present. On the night of the fifth of the past month, at half past eleven P. M., we were aroused by a constant yet delicious breeze. Arising from our couch the lovely,still moonlight night tempted us to take a stroll through the Flower Garden, when we observed indications of the meeting about to be held. Our cogitations on the beauties of a moonlight scene were suddenly brought to a close by Verbena, Madame Modest. The beautiful, rosy salmond robe the lady wore, and the merry twinkle of her dark claret eye, convinced us she was made up for the occasion; in short the lady, intimated to us we had no time to lose, as she was then only waiting for her escort to lead her to the bower.—We hastened on to take up a proper position, and had scarcely ensconced ourself in a comfortable little nook, when the Committee of Reception arrived, consisting of the following gentlemen in full uniform, appointed by the Reigning Queen of flowers, Princess Adelaide Moss Rose, to officiate on the occasion, viz:—General Cavaignac, General Scott, General Merlin, General Pelissier and Lord Raglan. A gentle breeze and a universal excitement among the flowers warned us business was about to commemce.

General Cavaignac arose and called the meeting to order, and stated this meeting was held for the benefit of the bedding out plants; as to himself, he bedded at home, though the ladies and gentlemen present he hoped would take no exceptions to his remarks as he was well aware that they, the bedding out Society, were much more tender by nature than he himself. He took pleasure in introducing Col. Fremont belonging he believed to the Verbena family of North Carolina. The excitment attending the introduction of this gentleman was intense; many and long were the amatory glances given to this talented gentleman. The Hon. Miss Neville seemed particularly struck with his fine form. After a few moments of painful silence, Col. Fremont said, he could not but feel embarrassed on this occasion, in the presence of so much natural beauty and fineness of form displayed in the lovely forms and colors around him. He begged to say, this was a meeting in which all could participate, state their grievances, and if possible obtain redress. He hoped the ladies would state theirs first.

A delightful excitement among the ladies followed this address, and the sly glances from Madame Lamournier to the gallant Colonel, bid fair to place Miss Neville in the back ground. After a short pause Viscountess Emlyn arose, with indignation plainly marked on her lovely countenance: She wished to call the attention of all present to the fact that she had been shamefully treated, planted among what she understood were called herbaceous plants, but she must say, she considered them audacious plants; they had entirely shut her out from the gaze of mortals and compelled her to waste her beauty and sweetness on the desert air.—She bowed to the audience and was about to retire, when General Simpson stepped forward and escorted her to a seat. As they passed us, the petals of the lady were shaking merrily; we did not hear what was said, but supposed it was something very interesting.

On the Viscountess retiring, Mrs. Holford arose and said she had to complain of the inattention of those who had her in possession; being perfectly white, she certainly did not like being placed by the side of and compelled to mix with Pink Phloxes and large dark Dahlias; but being the mother of a family, here she pointed to two lovely flowers at the far side of the bower, she wished her own color should, as well as her daughters, be placed in a position to contrast with and lighten the effect of her own and other colors, such as scarlet and blue, with yellow calceolaria in the distance, and a bed for the use of each colors. As she was a large lady, and the purest white ever yet sent out from any Florists' establishment she did not like to be crowded.

No other ladies rising to address the

the meeting, Prince Frederick William arose and said, as the majority of the ladies belonging to the Verbena family declined to address the meeting, he would suggest the propriety of laying before the public the lovely appearance their gardens would have if they would but plant one colored Flowers in each bed, and fill the beds with plants, and arranging the colors as Mrs. Holford had suggested. It was his good fortune to be placed in possession of such a situation, all to himself, with the lovely Fair America as a near neighbor, and the beautiful and unique little Imperatrice Elizabeth bordered the edge of the bed in which the fair American reposed. In retiring the ladies crowded around the Prince; the sighs and glances of the most beautiful told plainly he was a universal favorite. The brilliant scarlet of his uniform contrasted beautifully with the white and flowing robe of the fair American.

Amid the flutter and excitement attending the exit of the Prince, some small object was observed making its way from the far side of the bower, when it wss ascertained to be scarlet Geranium General Tom Thumb, accompanied by his lovely bride. Her color is blush Pink: she certainly blushed profusely when assisting the General to climb a mushroom which had been placed for his convenience so he could be seen. Addressing the meeting, he observed, he was pleased to say he had been treated finely of late; the present summer he was revelling in the rich soil of our east border, accompanied by his beautiful bride, which some Florist was so kind as to present him with, and he thought the most beautiful flower he had ever seen, though he was greatly pleased with Minnie Nette that was growing so profusely in the same border with himself, she was very modest and unrivalled as a friend; the natural tint of her dress brought out in bold relief the blushing beauty of his bride. After gracefully bowing to the assemblage, amid the rustling of leaves and shaking of petals being assisted to dismount by his bride, he retired.

General Cavaignac now asked if any one wished to address the meeting, receiving no reply he said, a petition had been sent to him to present to the Queen of Flowers, praying for redress of grievances from the Herbacoeus plants which should be presented. Sir Joseph Paxton now moved a vote of thanks to the committee of reception, which was seconded and passed unanimously; also a resolution that the proceedings be published in the N. C. Planter; after which the meeting dispersed. The last we saw, was the gentlemen escorting the ladies to their respective places of abode, and Cupid attending them; after which we immediately retired.

W. H. HAMILTON.

* * *

During our visit to Lowell we were shown through the Laboratory of our celebrated countryman, Dr. J.C. Ayer. Scarcely could we have believed what is seen there without proof beyound disputing.

They consume a barrel of solid Pills, about 50,000 doses and 3 barrels of Cherry Pectoral, 120,000 doses per diem. To what an inconceivable amount of human suffering does this point! 170,000 doses a day!! Fifty million of doses per year!!! What acres and thousands of acres of sick beds does this spread before the imagination! And what sympathes and woe! True, not all of this is taken by the very sick, but alas, much of it is. This Chery Drop and this sugared Pill are to be the companion of pain and anguish and sinking sorrow—the inheritance our mother Eve bequeathed to the whole family of man.—Here the infant darling has been touched too early by the blight that withers half our race. Its little lungs are affected and only watching and waiting shall tell which way its breath shall turn. This red drop on its table is the tallisman on which its life shall hang. There the blossom of the world just bursting into womanhood, is stricken also. Affections most assiduous care skills not, she is still fading away.—*Galveston Texas News.*

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GUANO.

V E WOULD CALL THE ATTENTION OF
Guano Dealers, Planters and Farmers to
article which we have on hand and for sale at
'orty per cent less than Peruvian Guano,
which we claim to be superior to any Guano
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WEBB, of New York, from Jarvis' and Ba-
s' Islands, in the "South Pacific Ocean," and
ld genuine and pure as imported. It has
satisfactorily tested by many of our promi-
Farmers, and analyzed by the most eminent
popular Agricultural Chemists, and found to
ain (as will be seen by our circulars) a large
entage of
e Phosphate of Lime and Phosphoric Acid
other animal organic matter, yielding ammo-
sufficient to produce immediate abundant
s, besides substantially enriching the soil. It
e freely used without danger of burning the
or plant by coming in contact with it, as is
ase wth some other fertilizers; retaining a
degree of moisture it causes the plant to
in a healthy condition, and as experience
roved

Free of Insects.

rders in any quantity (which will be prompt-
ended to) or pamphlets containing full par-
rs of analyses and tests of farmers,
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PURE BRED STOCK.

R SALE.—Pure Bred Durham Cattle at
$250; Spanish Silecian Merino Sheep and
h Merino Sheep, at $9 $2 each; Essex pigs
oe's improved white pig, at $8 each; Mad-
ar Rabbits at $10 per pair; Brood Mares
by "Bush Messenger" at $125 to $500;
got by "Cotrill Morgan" and "Bush Mess-
' at $50 to $200. All Animals sold will be
or haltered, and carefully placed at the Ex-
Office. *My* residence is 4½ miles East of
ville, Fayette Co., *Pa.* P. O. Box 6.
JOHN S. GOE.
l, 28th 1860. 5—6m.

DRAINING TILE.

or Land Drainage.

00 2, 3 and 4 inch Sole Tile on hand, and
. Address,
L. M. HATCH,
Charleston, S. C.
2, 1860. 4—toa$10

---

he Spirit of the Age,

GE WEEKLY FAMILY NEWSPAPER
PUBLISHED IN RALEIGH, N. C.,

Y A. M. GORMAN,

TOR AND PROPRIETOR,

$1 50 for single copies—Clubs of five *and*
$1 each, *in advance,*

To Planters and Gardeners.

The subscribers offer for sale 60,000 barrels of Poudrette, made by the Lodi Manufacturing Company, in lots to suit purchasers. This article is in the twentieth year of its introduction into this country, and has outlived fertilizers of every other description, for the following reasons:—

1st. It is made from the night soil of the **City** of New York, by the L. M. Co., who have a capital of over $100,000 invested in the business, which is at risk should they make a bad article.

2d. For corn and vegetables it is the cheapest, neatest and handiest manure in the world, it can be placed in direct contact with the seed, force and ripens vegetation two weeks earlier, prevents the cut worm, *doubles* the *crop,* and is *without disagreeable odor.* Three dollars worth or two barrels is all sufficient to manure an acre of corn in the hill.

PRICE—1 bbl. $2,—2 bbls. $3,50,—5 bbls. $8, and over 6 bbls. $1,50 per barrel, delivered free of cartage to vessel or railroad in New York City.

A pamphlet containing every information, and certificates from farmers all over the United States, who have used it from two to seventeen years, will be sent free to any one applying for the same.

GRIFFING BROTHERS & CO.,
60 Courtlandt Street, New York.
March 1860. 3—2m. J. C. & CO., $3.

BALTIMORE

Made Agricultural Implements

VERSUS EASTERN.

WE notice that Messrs. R. SINCLAIR, JR. & Co. of this city, received FIRST PREMIUMS for their deservedly famed Agricultural Implements at the recent Agricultural exhibitions and Fairs held in Maryland, Virginia, N. Carolina, and the Southwestern states, namely;

By the Maryland State Agricultural Society, 14 *Premiums, By the Virginia & N. Carolina agricultural society,* 9 *Premiums, By the Seaboard Agricultural society, held at Norfolk, Twelve Premiums.*

Also awarded to Sinclair & Co., by the Kentucky and Tennessee State and County Fairs (first) Premiums on Sinclair's Patent Masticator for mashing and cutting Corn Stalks, Straw, &c., making in all Thirty-nine First Premiums in favor of Sinclair & Co,'s Wares, and showing a decided preference by the judges in favor of Baltimore Made Implements.

Included in the above *P*remiums were Stetson's Patent Reaping and Mowing Machine, Sinclair's Patent Straw and Fodder Cutters, Sinclair's Patent Spiral Threshing Machine, Wheat Drill with Guano Attachment, Serrated Clod Roller, Corn Shellers, *C*orn Drills, &c.

In the above estimate of Premiums, the following were not included in the different contests, all having received their quota of Premiums at Fairs previously held, viz:

Horse Powers, Spur and Bevel Geared; Corn Mills, Burr and Iron; Fanning Mills; Rolling Screens; Agricltural Furnace; Chain Pumps; Lime Spreaders; Garden Tools, &c., &c.

☞ The Agricultural Implements and Machinery manufactured by us are constructed in the most substantial and durable manner, great capacity, and particularly adapted for Southern use and usage. Planters or Merchants wanting supplies will be furnished with Price Lists on application.

R. SINCLAIR, Jr. & Co.,
Manufacturers, Baltimore, MD.
April, 1860. 4—6m.

Ayer's Sarsaparilla.

A compound remedy, in which we have labored to produce the most effectual alterative that can be made. It is a concentrated extract of Para Sarsaparilla, so combined with other substances of still greater alterative power as to afford an effective antidote for the diseases Sarsaparilla is reputed te cure. It is believed that such a remedy is wanted by those who suffer from Strumous complaints, and that one which will accomplish their cure must prove of immense service to this large class of our afflicted fellow-citizens. How completely this compound will do it has been proven by experiment on many of the worst cases to be found of the following complaints:

Scrofula and Scrofulous Complaints, Eruptions and Eruptive Diseases, Ulcers, Pimples, Blotches, Tumors, Salt Rheum, Scald Head, Syphillis and Syphilitic Affections, Mercurial Disease, Dropsy, Neurolgia or Tic·Doulouruex, Debility, Dyspepsia and Indigestion, Erysipelas, Rose or St. Anthony's Fire, and indeed the whole class of complaints arising from Impurity of the Blood.

This compound will be found a great promoter of health, when taken in the spring, to expel the foul humors which fester in blood at that season of the year. By the timely expulsion of them many rankling disorders are nipped in the bud.—Multitudes can, by the aid of this remedy, spare themselves from the endurance of foul cruptions and cruptions and ulcerous sores, through which the system will strive to rid itself of corruptions, if not assisted to do this through the natural channels of the body by an alterative medicine. Cleanse out the vitiated blood whenever you find its impurities bursting through the skin in pimples, cruptions, or sores; cleanse it when you find it is obstructed and sluggish in the veins; cleanse it whenever it is foul, and your feelings will tell you when. Even where no particular disorder is felt, people enjoy better health, and live longer, for cleansing the blood. Keep the blood healthy, and all is well; but with this pabulum of life disordered, there can be no lasting health. Sooner or later something must go wrong, and the great machinery of life is disordered or overthrown.

Sarsaparilla has, and deserves much, the reputation of accomplishing these ends. But the world has been egregiously deceived by preparations of it, partly because the drug alone has not all the virtue that is claimed for it, but more because many preparations, pretending to be concentrated extracts of it, contain but little of the virtue of Sarsaparilla or any thing else.

During late years the public have been misled by large bottles, pretending to give a quart of Extract of Sarsaparilla for one dollar. Most of these have been frauds upon the sick, for they not only contain little, if any, Sarsaparilla, but often no curative properties whatever. Hence, bitter and painful disappointment has followed the use of the various extracts of Sarsaparilla which flood the market, until the name itself is justly despised, and has become synonymous with imposition and cheat. Still we call this Compound Sarsaparilla, and intend to supply such a remedy as shall rescue the name from the load of obloquy which rests upon it. And we think we have ground for believing it has virtues which are irresistable by the ordinary run of the diseases it is intended to cure. In order to secure their complete eradication from the system, the remedy should be judiciously taken according to directions on the bottle.

PREPARED BY

DR. J. C. AYER & CO.,

Lowell, Mass.

Price, $1 per Bottle; Six Bottles for $5.

Ayer's Chery Pectoral

has won for itself snch a renown for the cure
every variety of Throat and Lung Complaint, th
it is entirely unnecessary for us to recount the e
dence of its virtues, wherever it has been employ
As it has long been in constant use through t
section, we need not do more than assure the p
ple its quality is kept up to the best it ever
been, and that it may be relied on to do for th
relief all it has ever been found to do.

Ayer's Cathartic Pills,

FOR THE CURE OF

Costiveness, Jaundice, Dyspepsia Indigesti
Dysentery, Foul Stomach, Erysipelas, Headac
Piles, Rheumatism, Eruptions and Skin Disea
Liver Complaint, Dropsy, Tetter, Tumors and S
Rheum, Worms, Gout, Neuralgia, as a Dinner P
and for Purifying the Blood.

They are sugar-coated, so that the most sen
tive can take them pleasantly, and they are
best aperient in the world for all the purposes o
family physio.

Price 25 cents per Box; Five boxes for $1

Great numbers of Clergymen, Physicians, Stat
men, and eminent personages, have lent th
names to certify the unparalleled usefulness of th
remedies, but our space here will not permit
insertion of them. The Agents below named
nish gratis our American Almanac in which t
are given; with also full descriptions of the ab
complaints, and the treatment that should be
lowed for their cure.

Do not be put off by unprincipled dealers w
other preparations they make more profit on.
mand AYER's, and take no others. The sick w
the the best aid there is for them, and they sho
have it.

All our remedies are
Sold by Wiiliams & Haywood, Raleigh; Po
& Gorrell, Greensboro'; Henderson & Ennis,
isbury; and all merchants generally.

At wholesale by M. A. C. A. Santos, Norf
Va.: Purcell, Ladd & Co, Richmond Va.

AMERICAN
CHEMICAL GUAN

MYCOETH & PERKINS, MANUFACTURE

THIS Guano has been fairly and practic
tested side by side with

**Peruvian and other Guano, Super Ph
phate of Lime and Poudrette,**

equal quantities, by several leading Agricultu
and by numerous Farmers and Planters, w
reports fully establish the manufacturers, s
ments as to its great fertilizing properties. P
per ton Forty Five Dollars, and for sale in q
ties to suit pnrchasers.

Pamphlets containing testimonials and An
sis can be had on application at the office o
North Carolina Planter, or of

LAIGHTON & UNDERWOOD,
General Agents,
161 Pearl St. New Y

April 2, 1860. 4

T D McDowell

NOVEMBER NUMBER, 1860.

NORTH CAROLINA PLANTER.

Bought
McDowell

A MONTHLY

Southern Agricultural Journal:

DEVOTED TO

THE IMPROVEMENT OF SOUTHERN FARMING, HORTICULTURE,
FLORICULTURE, AND THE DOMESTIC AND MECHANIC ARTS.

JAMES M. JORDAN, AGRICULTURAL EDITOR.
JOHN W. WOODFIN, OF BUNCOMBE, ASSOCIATE EDITOR.
W. H. HAMILTON, HORTICULTURE AND FLORICULTURE.

A. M. GORMAN, Publisher, Raleigh, N. C.
TO WHOM ALL COMMUNICATIONS MUST BE ADDRESSED.

CUMBERLAND COUNTY FAIR.

THE Seventh Annual Fair of the Cumberland County Agricultural Society will be held at Fayetteville, on the 14th, 15th, and 16th days of November next.

The Annual Address will be delivered by Col. Walter F. Leak, of Richmond County.

JOHN P. McLEAN, Sec'y.

November, 1860. 11—1t.

EVERYBODY WANTS THOSE FINE FRUITS

that were on exhibition at the Fair—I am ready to sell trees that will yield just such fruits, at the following prices, viz:

Apple	Trees	10 cents each,		
Peach	do.	10	"	"
Apricot	do.	25	"	"
Nectarines	do.	25	"	"
Plum	do.	25	"	"
Fig	do.	25	"	"
Cherry	do.	25	"	"
Quince	do.	25	"	"
Pear	do.	50	"	"
Grape Vines		25	"	"

Strawberry Plants 25 cts. per doz., $1 per 100.

Asparagus Roots $1 per 100.

THOMAS CARTER,
Nurseryman,
Raleigh, N. C.

November, 1860. 11—1t.

WASHING CATARACT MACHINE.

Clothing, Time, and Labor Saved.

Indispensable to Housekeepers.

THE most simple, economical, and durable article ever offered to the public to alleviate the discomforts of wash-day.

DESCRIPTION.

It consists of a metal cylinder, with ribs on the inside, and an interior cylinder of wood, with ribs. There is a space of from 6 to 8 inches.—One crank turns both cylinders at the same time in opposite directions, rapidly creating a suds, forcing the water through the clothes, and effectually removing the dirt. The action of the water does the work quickly, dispeness entirely with rubbing, and thus saves the wear of clothes.

SULLIVAN & HYATT, Proprietors,
54 Beekman St., New York.

N. B.—State and County Rights for sale, and purchasers supplied with Machines at wholesale on liberal terms.

☞ A Machine is in operation by a laundress daily, at our Salesroom 439 Broadway.

April 1860. [J. C. & CO.] 4—ta$6.

FOR SALE,

50,000 PEACH TREES and other NURSERY STOCK. Send for a Descriptive Catalogue, giving plain directions for their proper treatment—gratis.

WILLIAM PARRY,
Cinnaminson, N. J.

October, 1860, 10—4t

DRAINING TILE.

For Land Drainage.

100,000 2, 3 and 4 inch Sole Tile on hand, and for sale. Address,

L. M. HATCH,
Charleston, S. C.

April 2, 1860. 4—toa$10

HENRY D. TURNE

WHOLESALE AND RETAIL

BOOKSELLER AND STATIONER,

NO. 1, FAYETTEVILLE ST., RALEIGH, N.

H. D. TURNER has on hand, and for s at the lowest prices, a large and well lected assortment of Law, Medical, School, T ological and Miscellaneous Books. Also, F Editions of Bibles and Prayer Books, in ev variety of Binding and size.

And is receiving regularly all the New Wo in the various departments of Literature.

School Books.

He respectfully solicits the attention of Sch Teachers engaged in the instruction of youth his assortment of School Books, which is v extensive, comprising the most valuable wo now in use.

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His stock of Blank Books is complete, emb cing every description of Account, Record a Memorandum Books.

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Every variety of Common and Fancy Stat ery, including Writing and Wrapping Pap Steel Pens, of every description and price, I Quills, &c.

Booksellers, Merchants, Teachers, Librar and School Committees supplied on the mos sonable terms.

All orders promptly attended to.

Raleigh, January 22, 1859. 22—t

A CURE FOR THE PILES.

HAVING been afflicted for 26 years with t terrifying disease, and finding no relie finally discovered a VEGETABLE OINTMEN which I believe is unparelleled in its efficacy, a now offer this remedy to the public, as the m effectual and speedy cure, ever discovered. T ingredients of this Ointment are PURELY VE ETABLE, and one box, if used according to rections, will effect a cure.

This ointment is sold only by myself and J Myatt, and by sending $1, and 9 cents in post stamps, a box will be sent any where in the Uni States. Address NEAL BROWN,
Raleigh, N

Raleigh, April 21, 1860. 35..

CERTIFICATE.

I could add a large number of Certificates, to the efficacy of my Ointment, but the one s joined, from a well known citizen of Raleigh, v untarily handed to me, will probably suffice :

RALEIGH, April 12, 186

MR. NEAL BROWN—*Dear Sir :*—Having b grievously afflicted with the Piles for a numbe years, I determined, after failing with many ot so-called remedies, to try your Ointment; an affords me pleasure to say, that by its use, I entirely relieved from that affliction.

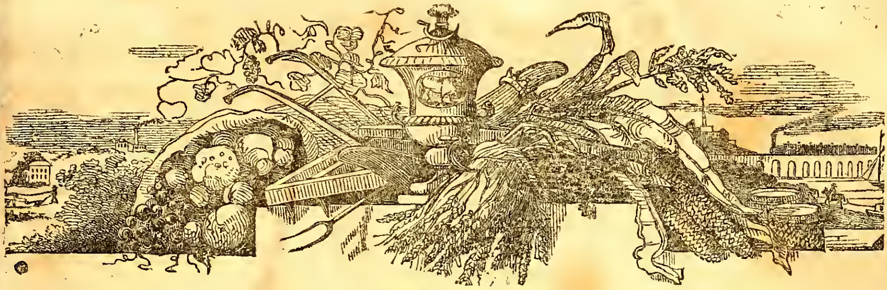
Yours respectfully, SILAS BURNS.

STEAM ENGINE FOR SALE.

7 HORSE POWER, about as good as new. T owners offer it for sale CHEAP, as a larger one needed to do their work. Apply to

BRIGGS & DOOD,

Raleigh, January 14. 21—t



THE NORTH-CAROLINA PLANTER.

Devoted to Agriculture, Horticulture, and the Mechanic Art.

Hœ tibi erunt artes.—Virgil. { These are the pursuits to which you should direct your attention.

VOL. 3. RALEIGH, N. C., NOVEMBER, 1860. NO. 11.

Selections.

In the December number of the North Carolina Planter, we shall commence the publication of a series of essays on the agriculture of the old North State, by that eminent Chemist, Geologist, and scientific Agriculturist, Prof. Emmons.

Farmers and planters would do well to avail themselves of this invaluable information, through the medium of our journal, by renewing their subscription and inducing others to order it. These essays contain a full account of the swamp lands of the State—the proper method of draining, reclaiming and preparing them for successful cultivation.

These essays have been published by order of the Governor for the use of the members of the Legislature, and we hereby make our acknowledgements to his Excellency for a copy of them, which we shall use for the benefit of our subscribers. These essays also contain a statement of the principles of the science upon which the practice of agriculture, as an art, are founded. Send up the clubs, and don't let it be said that North Carolina, now taking the lead in other enterprises, cannot support her home agricultural journal.—Ed.

SWAMP LANDS.

The Swamp Lands of North Carolina seemed to require a special examination in consequence of their variable characters and their great extent of surface. Differing in all respects from the uplands, but possessing among themselves certain characters in common, and at the same time as bodies of land other characters, which are not common, we have entertained the opinion that they richly deserved a careful examination, and have been encouraged to undertake it in the hope that it would result in the discovery of many important facts. Such a result has been hoped for by the fact that other State surveys, as well as those which have been undertaken by private enterprise, have left this field untouched.

Viewing the subject in its most general points, before the work was undertaken, it seemed that the most important questions requiring solution were those which related to the condition and state of the elements which compose these soils, their relative and absolute quantities, and their prospective powers of endurance when brought into cultivation; the latter of which would be determined, or at least indicated, by the per centages which analyses would give.—These are some of the views which have governed us in the choice of measures we adopted in executing the task, and which have also incited us to the undertaking.—As we had already determined from several analyses that there were varieties of soil included under the general term *swamp lands*, though they have the same aspect, appear much alike, and yet were found to be unlike the best lands under this class; so we felt that it was important to be able to point out those particulars in which they differed. This is not at all difficult when subjected to laboratory tests, but it would be still more useful to point out some method which could be executed by the planter, and upon which he could rely, at least so far as to distinguish thereby the poor soils from the rich.

The method proposed is simply a mechanical separation of parts by means of water, and by which the coarse sands may be obtained separately from the fine, the latter of which are really the important inorganic parts, and which give in analysis the lime, iron, alumina, phosphates, magnesia, etc. These complex elements, which furnish these important nutritive or available elements differ in different localities and in different parts of the same tracts, facts which are explained in the text. In some they are reduced to 2.50, or 3 to 4 per cent., when in other parts perhaps of the same tract they exist in proportions varying from 10 to 50 per cent.

By a mechanical separation in the mode we have described, a planter may determine these important facts for himself with sufficient accuracy to guide him in his purposes, for it is an established principle, that when the inorganic matter does not exceed 3, 4, or 5 per cent., the land will not produce well. If, however, this small per centage exists only in a top layer, and at a depth of only 18 inches or so, there is a stratum charged with a larger per centage, say 10 to 15 per cent. of inorganic matter in which the fine soil exists, the land may be cultivated successfully; if, however, a stratum of this kind is 5 or 6 feet below, or we have a mass of this thickness composed almost exclusively of vegeble matter, the plant will be unable to send its roots thus far, for it will perish too soon to secure a foothold on life, just as it would in a bed of marl, or a heap of stable refuse.

The Carteret county open prairie has been re-examined, and we find a more favorable composition of its soil than at a previous visit. Drainage of a tract has affected a shrinkage of the vegetable matter so much that a stratum of soil may be reached by the roots of crops. The tract, in its poorest constitution, is by no means to be ranked with a first class swamp soil. I have stated that there is a belt of excellent land surrounding the open prairie.—But though the open prairie is not well adapted to the growth of the cereals, yet for Irish potatoes it is admirably constituted, and it is not improbable but that an enterprising man would make money by their cultivation. But I have stated the principal facts in their proper places, and need only refer to them in this place.

The labor required in the analysis of so many specimens has been exceedingly great. The work has been in hand more than two years. My assistants have been employed with me in the work when in town and when out door work was impossible or could not be prosecuted to advantage. We have no doubt that much more should be undertaken, the results of which would be advantageous to the State, at least indirectly. It is highly important that lands so fertile should be brought into cultivation, and we have no doubt that large tracts which are classified under the term, *swamp lands*, are to become the best in the State for the growth of cotton. The great want which is felt is the construction of roads by which these lands may be reached and brought into market. We have no hesitation in saying that the two millions of acres of swamp lands are worth four millions of upland. In a rough estimate of the kind, we take time and expense of cultivation into account—the time these lands endure without the use of expensive fertilizers, and the ease and slight wear and tear of the instruments used in cultivation, when compared in the same list of expenses required in the cultivation of uplands of the middle counties.

However this may be, our aim has been to place the merits of these lands in their true light; not to exaggerate or depreciate. If this aim has been secured we shall be satisfied with the results.

E. EMMONS,
State Geologist.

Considerations on the Causes and Effects of the Diminution of American Crops.

BY GUSTAVUS DE NEUVEU, OF FON DU LAC, WISCONSIN.

Notwithstanding the fertility of a large portion of the surface of the United States, a fertility which is acknowledged to be superior to that of any country in Europe or Asia, the average acreable product of the soil is much below that of some countries in those regions. China, for instance, which supports a population estimated at 300,000,000, or ten times that of the United States; upon a *cultivated* surface probably not three times greater than that of this country, must produce about three times as much to the acre.

France, with an area less than one-fourth that of the settled portion of our territory, has a larger population, proving that its soil produces much more than ours.

England and Scotland, the soils of which are far from being naturally of a first order of fertility, must raise enormous amounts of life-sustaining products, as is exemplified by their large population.

The same might be said of Belgium and several other countries.

It seems to me that few questions would be more interesting to consider than to investigate the causes and possible remedies of this state of agricultural inferiority.—And let me here at once remark, that it is lamentable and humiliating that it should be necessary to discuss such a topic as the exhaustion of *American lands;* of lands of great natural fertility, which have not been in cultivation, on an average, for half a century, while soils, not naturally more fertile, are known to have been in culture in Europe for at least 2000 years, and in China for a longer period, yielding at this day far larger returns than do our own lands which are, as it were, fresh from the creation!—It is my belief that the main cause of our inferior production is to be found in the sparseness of population. There are undoubtedly several others, but they are nearly all more or less dependent upon this first principal cause. I would add that, as the population of the United States is increasing at a ratio probably unprecedented in the history of man in so extended an area, we have every reason to hope that the evil is constantly and rapidly being corrected.

As long as there shall remain vast tracts of unoccupied virgin soil, of exceeding fertility, to be had for a low price, so long must agriculture be carried on in a loose and careless manner, particularly in the neighborhood of those lands. If this be denied to be the cause, we must ascribe the fact to other influences; but what other cause shall we name? The fertility of American soil is proverbial, and we therefore cannot look for the deficiency in that direction. Neither can we ascribe it to the climate, for although our winters are severe at the North, yet our summers are genial, and sunshine and rain fall upon the land, and forward the growth of plants as beneficently here as in any other section of the earth. Nor can we find the cause in our political institutions, for they are acknowledged to be as paternal and as liberal as any ever devised for the welfare and happiness of man. Neither can it be found in our religious institutions, for I believe no other people are so free in this respect as those of the United States. Nor yet in exorbitant and discouraging taxation; in this particular we are more favored than those nations which surpass us in the comparative amounts of their products. It is thought by some that one great reason is to be found in the absence of sufficient protection to American industry, and the consequent tendency of too great a proportion of our people, who otherwise would pursue other employments, to seek their support in the cultivation of the soil.—There may be something in this, and it may be one of the causes, but yet I do not think it the greatest; for, suppose the population of this country to be proportionately as large as that of France or of England, every one at once perceives that then the tariff question would only be important as affording means to keep the governmental machinery in motion, and could not have a very serious bearing upon the agricultural production of the country. As it is, however, that question is undoubtedly important to us, until our population shall become thus large. Among other reasons, one is, that the most profitable farming combines various kinds of produce, many of which are of such character that they must be consumed at or near home, as they will not, by their intrinsic value as compared to bulk and weight, bear transportation to any great distance, or cannot safely bear transportation at all. In either class, would be found many of the articles which help to make up the farmer's profits, such as eggs, poultry, milk, butter, hay, all the articles comprehended by the general name of *vegetables*, tender fruits, and several kinds of grain, which it is here unnecessary to enumerate. These never pay unless there is a demand for them at or near the place where they are produced. Without such a demand, it is unprofitable to cultivate these articles at all. Thus we are debarred from growing the very articles which would be least exhausting to our lands.

Probably the worst effect of our present system of exchange of products, with few exceptions, with other nations upon the agriculture of this country is, that in return for their goods, which have great value in a small bulk, we annually send to them thousands of tons of highly fertilizing elements which a wise system would require to be returned to the land for repeated production.* Other nations, England especially, import, at great cost, guano and other fertilizers, the expenditure for which is well repaid; while we, boasting the richness of our so-called inexhaustible lands, are blindly shipping away a constant stream of the most concentrated and valuable manures in the form of cotton, tobacco, wheat and Indian corn; and while they, with sedulous care, are constantly making their naturally poor lands richer, we are every year rendering our rich lands poorer.

However large may be the individual profits accruing from such a foreign commerce, the nation must be a loser; for, agriculturally speaking, other nations are constantly adding to their capital, while we are surely, and more rapidly than is generally believed, growing poorer and poorer—we reap the shadow, they harvest the substance.

I have said that the main reason of our agricultural inferiority was to be found in the sparseness of our population. Now, it is evident that if the density of that population were three or four times greater, or even six times, as will eventually be the case, the home demand would absorb a much larger proportion of the agricultural products of our land, if not the whole of them, and the exhausting tendency of our foreign commerce would then be obviated, or at least greatly lessened. And here we may observe that the most populous countries of the globe never export breadstuffs, or other agricultural produce to any great extent, but rather import them, their exports consisting mostly of manufactured articles, in great part derived from the bowels of the earth, or, if produced by agriculture, the greater part of their value being conferred by mechanical labor.

The Western States have few manufacturing establishments, certainly not sufficient to consume any considerable portion of the surplus of Cereals and other provisions; consequently, they have no home demand, as in populous manufacturing districts. A large portion generally remains after supplying the domestic consumption, which must seek distant markets; the greater part of which goes to Europe and other foreign parts. Agricultural produce is bulky, and cannot be transported four or five thousand miles, partly inland, without reducing its value to a comparatively low price where it is raised. This is one of the principal causes of the present depressed state of the agricultural interest in the West; and as long as this cause remains active, so long will there be a lack of inducement for Western farmers to make the earth yield supplies to its utmost capacity. At the same time the want of home markets keeps the price of Western produce down (except when European crops

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* The amounts of breadstuffs of all kinds, exclusive of rice and potatoes, imported and exported from the United States during the fiscal year ending June 30, 1858, are as follows:

Foreign imports free of duties	$5,395,933
Foreign imports paying duties ad valorem	95,964
Total imports	5,491,897
Domestic exports	33,698,490
Foreign exports	21,517
Total exports	33,720,007
Excess of exports	28,228,110

D. J. B.

are short,) the cheapness of Western lands prevents the wages of labor being lowered to a price corresponding with that of agricultural commodities; for when laborers do not receive sufficient wages for their services, there is to them a ready remedy in the public lands, from which they can preempt a farm upon one year's credit, or, if they have savings, they can at once purchase homesteads. This state of things, happy as it undoubtedly is in one sense, by giving facility to the poor man to secure a farm, has, however, this bad effect upon the agricultural improvement and thorough culture of the soil, that, by keeping the price of labor at a higher point than the productive value of that labor warrants, it causes the farmer to cultivate a large surface of land as cheaply and rapidly as possible, rather than a smaller surface in a slow and thorough manner; the interest on the capital invested in the land on which the crops are raised being comparatively a secondary consideration, for the cost of the produce is almost entirely made up of the labor expended in producing it.

In densely populated countries, this order of things is reversed. There the land is so expensive that it seldom yields more than 3 per cent. upon its cost, while the wages of labor are low on account of its superabundance. Therefore, the land owner must, from necessity, maintain the fertility of his fields by exacting for them the most complete culture and highest manuring, which he is enabled to do by the cheapness of labor and the high price he can almost invariably obtain for his products.

I have said that the American farmer is compelled to cultivate as large a surface as he can. This necessity is attended with another evil, which greatly detracts from the general production, namely the scarcity of laborers at harvest-time, which often makes it impracticable for him to secure his grain or hay as well as he would, had he abundant labor at his command. Our harvest-fields are frequently made, from necessity, a sort of race-course, where every man strives with his neighbor to reap or bind fast, regardless of the large proportion of grain, sometimes amounting to one-eighth, or even more, of the whole crop, which is wasted or lost. In Europe, everything is saved, mostly by the farmer, but also by poor people and children, who glean every ear which has escaped his careful gathering. Our comparative deficiency of production is made to appear, by this cause, even larger than the reality. Another consequence of the scarcity of labor is, that in general, our lands, not being so well prepared for the reception of seed, a great amount is required; making probably a difference of half a bushel of wheat per acre. This, trifling as it may seem, must make a difference of at least 3,000,000 bushels in the aggregate production of the United States. Much more seed might be saved by the use of drilling machines, which leaving the grain at equal distances in the ground, will seed it sufficiently, and better than could be done by hand, with about one-quarter of the amount usually put in. Such machines are deserving of all favor, when we reflect that their use largely enhances the crop, and that seed-wheat absorbs every year about one-eighth of the produce of the preceding season. Their general introduction would probably save 12,000,000 bushels of wheat annually, which, being already earned, and past contingencies of season or other risks, would represent at least 18,000,000 bushels in prospect.

In the United States, we have decidedly better harvesting weather than they have in Western Europe, yet, for want of sufficient help, with large amounts of grain and of hay exposed to storms, a much greater proportion is injured or destroyed from wet here than there. Many million bushels of grain are yearly lost in the United States from this single cause. However, the recent introduction of reaping machines, which save the grain as perfectly as could be done with the most careful hand-labor, and at far less expense, are doing much to remedy some of these evils, where the nature of the land is such that they can be used; that is, where neither stumps nor stones stand in the way. These machines performing with five or six men as much work as double that number could do without them, have the effect of making laborers more abundant at harvest-time.

Another injurious consequence of sparse population is an excess of birds and wild animals, which prey upon the husbandman's crops, fruit, poultry, and stock.

Generally, American farms are undoubtedly too large, especially at the West, for them to receive the high culture required for their production of so large a yield to the acre as they are able to produce. Too much is attempted, to be done thoroughly. Manure collection and the preparation of composts are not so much attended to as they deserve. We rely too much upon what we are pleased to term the "inexhaustible fertility of our soil." I am told that some forty years ago, the French settlers about Detroit were in the habit of depositing the manure that accumulated about their stables, in large heaps, upon the ice of the river, which was the most expeditious way of getting rid of what they deemed a nuisance. Others thought it cheaper to remove the stables themselves rather than the rich heaps which obstructed access to them. I have seen, in Wisconsin, what I consider a scarcely less objectionable practice, setting fire to the straw after the grain has been threshed—a practice which is still prevailing to some extent on the prairies. A more exhausting and ruinous course could hardly be imagined. The consequence of all this is, that our lands, which, under proper management and a judicious rotation, would be capable of yielding average crops of wheat of 25 to 35 bushels and upwards to the acre, seldom realize, one year with another, more than fourteen bushels—a sad state of things, when we reflect that the average yield of naturally poorer soils in England and Scotland is not less than 33 bushels.

A want of system in the distribution of the labors of the farm, and in the application of the principles or dictates of true economy, is so evident everywhere at the West, that the mere mention of the fact is sufficient to entitle it to be classified as one of the causes of our agricultural deficiency.

Everything considered, sheep are perhaps the most valuable domestic animals reared on our lands, on account of their little cost and large returns, and also by their improving greatly the land on which they graze. How, then, shall we qualify the fact that many of our prominent farmers have been compelled to abandon this branch of industry on account of the depredations of dogs and wolves? This evil demands the interference of State legislation.

Another defect in our agricultural practice is the apparent absence of a knowledge of causes and effects which generally prevails. As long as the land under tillage seems capable of producing the few articles which are raised by farmers here, mostly wheat; corn, potatoes and oats, so long are they entrusted to the soil with the expectation that the yield will be as large as when the land possessed its original fertility; and when, as is almost sure to happen, the expectations formed are not realized, the blame is laid to the extreme dryness or moisture, to heat or cold, or perhaps to the baneful influence of the moon—to everything, in fine, but the true reasons, neglect to restore to the land those elements of fertility of which the soil has been robbed by former crops, the want of sufficient tillage, and of proper rotation.

In view of the rapid impoverishment of our lands, it does not require proyhecy to foretell that, if the destruction of the human race is ever to take place, it will surely come by the absolute exhaustation of the elements of vegetable productiveness in that land in which a beneficent Being has given us for an abode and an inheritance. It will surely come when the earth shall be barren and desolate, made so by the sordid avarice of the very men who had the mission to adorn it and make it more fruitful. It will come through the starvation of the last descendant of Adam in the last once fruitful and smiling, then barren and desolate valley.

It would, indeed, be a singular fact, if it were true, that out of the many varieties of plants which the earth produces, only four or five could be raised with profit. In reality, wheat and corn are about the only articles which are thought to be capable of profitable transportation to an Eastern market; the Western farmer, whose groceries and dry goods almost invariably come from that quarter, is obliged to raise these two staples, which nearly alone supply such an exchange. This commerce, for many causes, has a tendency to keep the Western States poor and to depress their agriculture.

In spite of these drawbacks, how much cause we have for encouragdment in the present, how great reason to hope for the future! Let us but think of what has been achieved in the past—how many cities have been built—how many millions of acres have been subdued and made to contribute to the comfort and happiness of man within a single generation. Would it be reasonable, even in this fast age, to be dissatisfied with vast and valuable results—far outstripping those of any century since the creation of man—because we have failed, as yet, to equal the degree of perfection attained in countries having for their inheritance the accumulated capital and labor of centuries? Surely not. Everything cannot be done at once. Agricultural perfection is the work of time. The forest must first be cleared; the stones be removed; the sod broken; the marsh improved; the swamp drained and reclaimed; buildings erected; fences built; roads opened and made passable; school-houses constructed and endowed, and agricultural science disseminated among the people.

The annual report of the Patent Office and the agricultural papers throughout the Union are doing much to promote rural industry, and make known the various defects of our practices. But they are hardly sufficient. A more permanent good could be done to the rising generation by the establishment, in every State, of an agricultural college with an experimental farm, endowed with sufficient liberality, where farming would be taught, both as a science and a mechanical operation—where theory should be constantly confirmed by practice. In these institutions, many plants might be cultivated; native grapes, for instance, which, resisting the severity of our winters, might, by proper management, be made to produce wine with certainty, without danger of being killed by frost; an experiment worth trying, but which few individuals wauld undertake on a sufficiently large scale, for fear of want of success and consequent severe loss. Many other experiments might be mentioned, which, if successful, would greatly add to the wealth and comfort of the people.

It may not be out of place here to observe that the nations which thrive most by their agriculture are those that cultivate the greatest variety of products; for, when one article fails, another may succeed and make up the deficiency. A season may be unfavorable for wheat or potatoes, and good for corn; or unsuitable for the three, and yet good for fruit, vegetables and grass — Hence the people who cultivate the greatest number of staples, have probably seldom, if ever, occasion to lament, as we sometimes do, an almost total failure of crops. At any rate, one important point would certainly be gained; that inasmuch as farmers are predisposed to follow a routine from which it is difficult to remove them, their children, educated at these agricultural colleges, would work by the teachings of science or common sense, and better methods than now prevail would be certain to be speedily adopted. These institutions, with their libraries and other appendages, would remedy a great evil among us, who are, properly speaking, an agricultural people. In general, the agriculturist is not so liberally educated as men belonging to other professions, although, probably, no other calling really requires such extensive and varied knowledge of the laws and secrets of nature.

Experimental Study of the use of Salt as a Fertilizer.

The action of salt as a fertilizer, has long been a matter of uncertainty and dispute among agriculturists. In many cases it has been reported to be extremely useful, in many more to be entirely valueless, and in some positively disastrous.

We have no reason to disbelieve the testimony that has been offered at various times, and from a wide range of experimenters, although it is so contradictory in its character.

If the various statements concerning the use of salt as a fertilizer are true, the important question arises, how are we to know when it will be useful, and when otherwise?

This question can only be answered by the repetition of experiments, which must be made under a great variety of circumstances, and under conditions that are accurately known and defined.

In conducting such an inquiry, it is of the first importance to gather from the existing stock of experience, all the facts which throw any light either upon the question itself, or upon the methods of investigating it.

Under the conviction that a multitude of careful trials may be instituted among our farmers, with the prospect of explaining the contradictions of former experience, or at least of revealing the valuable fact that salt is capable of doing the agriculturist great service in many localities where it has not yet been tried, and also of contributing to the education of the public in the objects and methods of experimental agriculture, we have drawn up from various sources the facts, assertions and probabilities which may serve as guides in attempting the solution of this problem.

1st. We know that the constituents of common salt (chlorine and sodium) are unfailing ingredients of all agricultural plants, although they exist in vegetation in very variable, usually quite small amount.

2d. We know that in many instances (perhaps in all where this subject has been accurately studied) the use of salt as a manure has increased (often doubled) the amount of salt in the crop.

3d. We know that crops having large foilage, contain (and require?) more salt than those of the small-leaved and few-leaved kinds.

4th. It is said that tobacco is largely increased in quantity, but injured in quality, by applying salt as a manure. The same is said of sugar plants.

5th. It is probable that the white beet, mangel-wurtzel, and carrot, among field crops, (as is certain of asparagus in the garden,) being originally marine plants, will be more strikingly benefited by salt than other crops, and will admit of larger applications, other things being equal.

6th. We know that many soils near saline springs, (or reclaimed from salt marshes,) naturally contain as much or more salt than is needful for the growth of agricultural plants.

7th. We know that in many regions (those exposed to prevailing and especially stormy winds from the ocean) the soil annually receives from spray and rain more salt than is annually removed by crops.

8th. We know that salt is most often injurious in dry seasons, or on dry soils.

9th. It is probable that the positively injurious effects of salt are chiefly due to its being applied in too large quantity; for

10th. We know that a strong solution of salt hinders the germination of seeds, and destroys the life of the growing plant (marine plants of course excepted.)

11th. We know (from the recent experiments of Sachs and Knop in Saxony) that a weak solution of salt hinders (by one half or more) the transpiration of water through the plant; therefore,

12th. It is probable that a little salt has the effect to keep the soil more humid, and thus tends to counteract drought; and,

13th. It is probable that a little salt, by hindering excessive transpiration, (and too rapid growth?) causes the cellular tissue of the plant to develop in a firmer, healthier manner than it might otherwise do; and thus may be explained.

14th. The assertion that a bushel or two of salt per acre on grain crops prevents falling (laying or lodging) of the straw.

15th. It is, however, the experience of Girardin, Fauchet, and Dubreuil, that large doses (more than 370 lbs. per acre) increase the straw rather than the grain, and make the crop lodge on soil that has been dunged.

16th. It is said that the small applications of salt make the straw of the grains brighter, and prevent rust.

17th. It is said that large applications delay the ripening of the grain.

18th. It is said that salt prevents potato rot (by delaying the sprouting and blossoming of the plant, so that the critical period of its life is brought after the hot fogs and rains of late summer?)

19th. We know, from many trials, (those of Kuhlmann, and recent ones of Liebig,) that salt often remarkably heightens the effect of other powerful manures.

20. We know (from the studies of Way and Eichhorn) that salt is able to displace potash, ammonia, and lime from insoluble combinations of these bodies,—combinations such as, in all probability, exist in the soil. Therefore, and because

21st. We know that salt increases the power of water to dissolve the phosphates of lime, Magnesia, &c.,

22d. It is probable that its use may, on certain soils, be equivalent to an application of these bodies, by rendering the stores of them already existing in the soil available to crops.

23d. It is probable that salt is sometimes advantageous, not so much as a fertilizer, as by destroying worms and the larvæ of insects.

24th. It is certain that fields well manured with stable or yard manure, made from cattle that are supplied with all the salt they desire, thus receive more salt than is removed from them in ordinary culture.

25th. It is probable that thorough-drained fields will be more benefitted by (and require more?) salt, than undrained fields of similar soil.

26th. It is a matter of experience, that while 500 to 600, or even 800 lbs. of salt may be applied per acre before the seed, without injury (in moist climate or wet season,) not more than 200 lbs. per acre should be put directly on the growing crop.

Any one may easily select for himself from the foregoing, some one or more points that it is desirable to test in his own locality, and will also readily gather the most important circumstances that need to be regarded in carrying out an experiment to a good result.

We add, however, the following suggestions as to the manner of making the experiment:

I. Every experiment should furnish means of comparison with some standard. If, for example, it is sought to ascertain whether salt increases a crop on a given soil, not only should a portion of the crop and soil have salt applied to it, but another portion should be left without the application. If the question is, is the straw strengthened, or the grain made heavier? then, obviously, opportunity must be given to observe how strong the straw is, or how heavy the grain is where no salt has been used.

II. The plots of ground should not usually consist in a strip a few feet wide, or in a few rows of the crop, but in a nearly square surface, so as to have as little edge to the piece as possible, for the roots of plants often extend several feet beyond ordinary dividing lines, if the soil be grateful to them.

III. The experimental ground should be as uniform as possible in quality of soil, in tillage, dunging, and exposure, and should all have had the same treatment as regards cropping and manuring for several years previous to the trial.

IV. The plots should be of good size, at least one-eighth, preferably one-fourth of an acre.

V. "Everything should be done by weight and measure;" guesswork is worse than useless. Let the plots be accurately measured, not "paced off." Let the materials added, and the crop removed, be carefully weighed, and not "estimated by the eye."

VI. Every care should be used to observe and record, with fulness and accuracy, the character, exposure, present condition and previous management of the soil. The climate and weather, the development of the crop in all its parts, and in all stages of its growth, and generally, all facts bearing on the experiment, should be taken into the account.

SCHEME OF EXPERIMENTS.

A. *General Effects of Salt*,—as increase of product, improvement of quality of crop, prevention of disease, &c.

Two plots of any soil in any crop,—both may receive other manures or not; but their treatment should differ only in this fact, that one is salted, the other not. Use the salt at the rate of 350 lbs. per acre, (see 26th observation.)

B. *Effects on particular crops, or classes of crops*, as potatoes compared with carrots, grasses *vs.* root-crops, root-crops *vs.* grains.

Two plots for each crop as under A.

C. *Effects of different doses:*

Soil and crop alike—one plot unsalted, one with 75 lbs., one with 150 lbs., one with 300 lbs., one with 450 lbs., or other different quantities, less or more in number, as convenient.

D. *Effects on different soils:*

Soils different,—tillage, manure, and crop the same. Dose of salt the same.—Of each soil a salted and an unsalted plot should be observed.

◆

Sucking up Water from Sand.—Livingstone, the African traveler, describes an ingenious method by which the Africans obtain water in the desert:—"The women tie a bunch of grass to one end of a reed about two feet long, and insert it in a hole dug as deep as the arm will reach, then ram down the wet sand firmly around it. Applying the mouth to the free end of the reed, they form a vacuum in the grass beneath, in which the water collects, and in a short time rises to the mouth." It will be perceived that this simple, but truly philosophical and effectual method, might have been applied in many cases, in different countries, where water was greatly needed, to the saving of life. It seems wonderful that it should have been now first made known to the world, and that it should have been habitually practiced in Africa, probably for centuries. It seems worthy of being particularly noticed, that it may no longer be neglected from ignorance. It may be highly important to travelers on our Western deserts and prairies, in some parts of which water is known to exist below the surface.

Super-phosphate of Lime in Corn Hills.

Compost of Super-phosphate and Muck—A fine field of Corn—Improvement of a tract of worn-out "plain-land"—Benefits of deep plowing and high manuring.

I have to-day been looking at two or three corn-fields which are worthy of notice. My neighbor, R. Bradley, Esq., has a field of eight or nine acres of corn, on which he is trying an interesting experiment in the use of super-phosphate of lime. The land having been for several years in grass, the sod had become to closely bound too produce well: and although it was not convenient to manure the land much this year, yet it was deemed expedient to plow it up and cultivate it in corn, preparatory to giving it a heavy dressing of manure next year. The field was broken up in November last, eight to nine inches deep, and in May last harrowed, then marked out in rows three and a half feet apart each way, a tablespoonful of super-phosphate dropped in each hill, and the piece planted with corn, covering the super-phosphate an inch deep with earth before dropping the corn. In one row, however, reaching through the middle of the field, a compost of super-phosphate and muck was used, putting about a pint of muck and a tablespoonful of super-phosphate in each hill. The compost was made up several days prior to use, so as to allow the strength of the super-phosphate to become diffused through, and thoroughly absorbed by the muck.

I have been several times to see this row of corn, before to-day, that I might, at different stages of its growth, observe the effects of the mixture used in the hills.—The corn in this row came up more evenly and vigorously than that in any other row in the field, and has maintained a superiority over the rest in color and size, at all times so apparent to the eye, that the row could at once be picked out. Not only is the growth of corn greater in this row than in the other rows, but the stalks are also more fully set with ears, and those larger than elsewhere in the field.

Where super-phosphate is dropped raw into the hills, and comes in near contact with the corn, it is apt to eat off the young tender roots, and keep the corn back awhile, or until the earth has in a measure absorbed its strength, and thus more or less of the crop is retarded at a time when it ought to be coming forward rapidly. But by composting the super-phosphate with muck, it is so diffused and absorbed by the muck, that the compost is in a state to nourish the tender roots at once, and send the plant forward with a rapid and healthy growth, giving it a remarkably deep green color. Then, too, the muck is sweetened and modified by the super-phate, and furnishes a little fine vegetable food to nourish the corn in the fore part of the season, as well as make a little mellow place for the roots to expand in.—I can have no doubt, after what I have observed this year and last, but that if super-phosphate is to be used in the hill for corn, it will pay well to mix it with old dry pulverized muck, in such proportions as to allow about a tablespoonful of super-phosphate with about a pint of muck to each hill.—The compost should be made a week or two previous to use, mixing it in a shed, or the barn floor, and keeping it under cover till used, and freeing the muck from lumps, sticks, &c., before mixing. If muck is not conveniently to be had, rich loam, or fine rotten mould from the woods, may be used with good effect.

Four or five years ago, Mr. Bradly purchased a tract of thirty acres of old worn-out "plain land," and has from year to year since been bringing it, say eight or ten acres each year, into high cultivation. This year, he is redeeming the last portion of it, about two acres, from its sterile state, and has it in two fields of perhaps the very largest and best corn I have anywhere seen this season. The surface-soil of this plain had been quite exhausted by a long course of shallow plowing and close cropping with winter rye, as frequently repeated as the land would bear six or eight bushels of grain per acre. The soil had been so skinned to the depth of four or five inches, that ten acres of it would not support one cow decently through the summer—indeed, there was nothing of any value growing on it, after about the middle of July each year. The growth last year on the land which is now covered with such stout corn, was occasional sweet-ferns, mulleins, shrub pines, with here and there a few feeble poverty stricken grasses.

This tract of land has however one important redeeming quality. Underlying the shallow-plowed and worn-out surface, there comes a fine-grained, salvy, unctuous sub-soil, in texture between a sandy and a clay loam, which when brought to the surface by deep plowing, exposed to atmospheric and mingled with compost manure, becomes a very active and desirable soil for tillage purposes, one which stands dry weather well, and does not bake or become hard and crusted over in a wet season.—When first brought to the surface, it is of a pale yellow color, but by exposure to the air and to cultivation, soon changes to a good deep brown. The unctuous quality of this sub-soil, as it is taken in hand and worked by one's fingers, does not exist in the surface-soil; that is gritty, and crumbles in loose particles; while the sub soil is soft and waxy. Mr. Bradley early determined that the best chances for speedily converting this tract into productive tillage land, lay in bringing up and cultivating the sub-soil; and accordingly each portion of the plain when taken in hand for tillage, has been plowed deep at once.

In November last, the portions now in corn were plowed with the sod and subsoil plow, ten to twelve inches deep. In May last, the plowed land was manured with forty ox-cart loads of compost to each acre, about thirty-five bushels to each load, made of about equal parts each of muck and stable manure. The compost was plowed in, four to five inches deep, with a light sharp plow, gauged to the proper depth by a roller on the beam. The manure was thus placed where the mellow soil closed all around it, absorbing and holding its goodness, and yet keeping it near enough to the atmosphere to undergo a speedy and fertilizing decomposition, and where it is readily available to the growing crop in all stages of its progress.

After plowing in the manure, the field was lightly harrowed, then marked off each way in rows three and a half feet apart, a tablespoonful of superphosphate was dropped in each hill, and the corn planted, covering the super-phosphate well with earth before dropping the seed. The corn came up well, and has been twice hoed, using the cultivator each way between the rows, at each hoeing. The corn at this time is of very large growth and splendid color, the great lusty ears standing out in every direction, presenting a striking contrast with the vegetation standing on the same land one year ago—indeed, one wonders at the change, as he realizes how great it is, and he is struck with what the art of man can do in the improvement of land, when rightly directed. The present crop of corn—accidents before harvest excepted—will finely pay every expense that has been laid out on the land on which it stands, leaving a greatly improved field, for the production of good crops for several years to come.

The other portions of this tract of land have been treated in precisely the same way as that above described, so that now the whole has been brought from a sterile, unsightly barren, to handsome, smiling fields of grain and grass. The first portion, deeply plowed, highly manured, and planted with corn three years ago, is now in mowing, producing a good quality and quantity of grass. The next portion in corn last year, was sown with oats, and stocked to grass this season. The men are now harvesting the oats, and the crop is very stout, and the catch of grass perfect—showing the excellent qualities of this upturned and cultivated sub-soil for resisting drouth and taking grass kindly; for at sowing-time, we had hereabouts very dry weather, which lasted well into June.—Preparatory to sowing the oats, the land was plowed one or two inches deeper than when the manure was plowed in last year for corn, so as to bring the manure within immediate reach of the roots of the oats and young grass, and yet little below the surface, to keep it from drying. Probably two tons of hay per acre will be cut next year on the land that produced oats this year.

It appears to me that the improvements effected on Mr. Bradley's old worn-out plain, are a satisfactory demonstration of the advantages of deep plowing, accompanied with high manuring, wherever there is a good sub-soil to operate on. As I have remarked in former communications to the *Farmer*, many of the fields in the older settled districts of New England have a compact, fine-grained and fertile sub soil, but wholly or mostly unavailable to the crops, because, by a course of invariably shallow plowing, an artificial hard pan has been formed within four to six inches of the surface, through which the roots of the crops seldom or never penetrate. By at once breaking through this crust, bringing up the sub-soil, and exposing it to the atmosphere and to high cultivation, a remarkable freshness, mellowness and vigor is given to the land, the labor of the after-cultivation is much lessened and improved in mechanical texture, better resists the effects of extreme drouth or moisture, the roots of vegetation having an enlarged range for food, moisture, &c., the crops are thereby increased, and when the land is again laid down to grass, the sod does not quickly become bound, because the roots, having a deep range, do not so soon web themselves together near the surface. The writer has seen some fine illustrations of the advantages of this kind of cultivation, several of which he has heretofore described in the *Farmer*, and about others of which he will have something to say hereafter.—Notwithstanding that "tradition" is against him, he will not let the subject rest.

F. Holbrook.

Brattleboro', August 10, 1860.

From the Farmer and Planter.

Cross-Breeding of Animals.

The following remarks on the above much mooted point, upon which a great deal of ink has been wasted, are from the pen of an English writer, well posted up, and candid and fearless in the expression of his opinions. After a survey of the whole question, he remarks:

We cannot do better in concluding our paper, than gather up and arrange, in a collected form, the various points of our subject, which appear to be of sufficient importance to be again presented to the attention of our readers. We think therefore, we are justified in coming to the conclusions:

1st. That there is a direct pecuniary advantage in judicious cross-breeding; that increased size, a disposition to fatten, and early maturity, are thereby induced.

2d. That while this may be caused for the most part, by the very fact of crossing, yet it is principally due to the superior influence of the male over the size and external appearance of the offspring; so that it is desirable, for the purpose of the butcher, that the male should be of a larger frame than the female, and should excel in those peculiarities we are desirous of reproducing. Let it be here, however, repeated, as an exceptional truth, that though as a rule, the male parent influences mostly the size and external form, and the female parent the constitution, general health, and vital powers, yet that the opposite result sometimes takes place.

3d. Certain peculiarities may be imparted to a breed by a single cross. Thus, the ponies of the New Forest exhibit characteristics of blood, although it is many years since that a thorough-bred horse was turned into the forest for the purpose. So, likewise, we observe in the Hampshire sheep the Roman nose and large heads, which formed so storng a feature in their maternal ancestors, although successive crosses of the Southdown were employed to change the character of the breed.

It has been asserted by some observers, that when a female breeds successively from several different males, the offspring often bears a strong resemblance to the first male, which is supposed to arise from certain impressions made on the imagination or nervous system of the female. Although this is sometimes or often the case, we doubt very much whether it is so frequent as to be considered as a rule.

4th. Although in the crossing of sheep for the purpose of the butcher, it is generally advisable to use males of a large breed, provided they possess a disposition to fatten; yet, in such cases, it is of importance that the *pelvis* of the female should be wide and capacious, so that no injury should arise in lambing, in consequence of the increased size of the heads of the lambs. The shape of the ram's head should be studied for the same reason. In crossing, however, for the purpose of establishing a new breed, the size of the male must give way to other more important considerations: although it will still be desirable to use a large female of the breed which we seek to improve. Thus the Southdown have vastly improved the larger Hampshires, and the Liecester the huge Lincolns and the Cotswolds.

5th. Although the benefits are most evident in the first cross, after which, from pairing the cross-breed animals, the defects of one breed or the other, or the incongruities of both, are perpetually breaking out—yet, unless the characteristics and conformation of the two breeds are altogether averse to each other, nature opposes no barrier to their successful admixture; so that, in the course of time, by the aid of selection and careful weeding, it is practicable to establish a new breed ltogether. This, in fact, has been the istory of our principal breeds.

We confess that we cannot entirely ad- nit either of the antagonistic doctrines eld by the rival advocates of crossing and ure breeding. The public have reason o be grateful to the exertions of either arty; and still more have they respec- ively reason to be grateful to each other.

Let us conclude by repeating the advice hat when equal advantages can be attained y keeping a pure breed of sheep, such ure breed should unquestionably be pre- erred; and that, although crossing for the urpose of the butcher may be practiced ith impunity, and even with advantage, et no one should do so for the purpose of stablishing a new breed, unless he has lear and well defined views of the object e seeks to accomplish, and has duly stu- ied the principles on which it can be car- ed out, and is determined to bestow for he space of half a life-time his constant nd unremitting attention to the discovery nd removal of defects.

From the Farmer and Planter.

Salt and Lime.

Mr. Editor:— In your September umber, I notice "A Subscriber" wishes formation on the application and result Salt and Lime on Cotton and Corn.— aving made several experiments, I will eerfully give him my experience: For ur years I have tried Salt and Lime com- ned, but find it will not pay. I have ied it in all quantities, from a peck to a re, but every trial proved a failure. In y experiments with Salt alone, I found at one peck to an acre of Cotton, has evented rust. In one case I applied Salt every alternate row of Cotton, and found at the rows to which the Salt was ap- ied did not have rust, while those with- t Salt were nearly killed with the rust. y experience with Salt on Corn is, that heavy, stiff bottom lands, the yield was arly double, where salt was applied, com- red with the yield from the same area d quality of land without Salt.

I have experimented with nine kinds of nure, and after carefully watching the ogress and result of each, have come to conclusion that one peck of Salt, com- ied with four bushels of lot manure is ual to 100lbs of guano as fertilizer, and is much cheaper. As a general rule, too much lot manure is applied to the acre, but I have not sufficiently experimented in that respect, to say positively how much should be applied. My experience has taught me that lot manure should be applied early in January, if the weather will allow of working the land. One wagon load applied in January will do as well as four loads applied in March.

You ask me to get you one new subscriber, if the *Farmer and Planter* pleases me, and I wish to see it flourish. Well, that is a modest request, and I herewith enclose you the dollar, to renew my own subscription, and one for Mr. ———. But I do not intend to stop at that; I have "set my pegs" to twenty new subscribers for you, and I intend to get them. The fact is, all this neighborhod is going to take the *Farmer and Planter* next year: and I am glad to inform you that, in other portions of our State where I have lately been, there is quite a "fever" up for you. I shall not be at all surprised to hear, by next March, that you can boast of 10,000 *paid up* subscribers. So mote it be.

ROBIN ROUGHHEAD.

Common Salt, A Remedy for Insects.—Professor Mapes states, that common salt, applied to the soil, will do away with every grub, wire-worm, or other lesser insects, so destructive of corn, and other vegetables.

He applies it as a top-dressing, in the proportion of about six bushels to the acre. He says:

"I apply that quantity every year to every acre of my land; and since adopting this practice, I have never lost a plant by grubs. My neighbors who are afraid to try salt, continue to lose theirs, and are compelled to buy my cabbage and other plants, to re-set their beds."

Its value as a fertilizer is also worthy of consideration. It is composed of chlorine and soda, and these ingredients are defective in many soils. It also has the property of attracting and retaining moisture, as well as ammonia and other gasses, which add to the fertility of the soil. Our farmers can easily test it in a small way, by procuring the refuse salt of packing houses; or it will not be a very expensive experiment to procure even fresh salt for the purpose.

"Grass as a Manure,"

In recent article on the "Manurial Resources of the Farm," we put grass-growing in rotation with grain crops as the first grand resource of the farmer for raising and keeping up the fertility of his soil.—Having since noted several facts bearing upon this subject, which may tend further to illustrate and enforce the importance of attention to this fact in husbandry—"that the growing of clover and the grasses lies at the foundation of all profitable farming," we note them for our readers.

That on many of our natural wheat soils good crops of that grain have been grown every three years, and even every other year for many successive periods, is a well known fact. We find in the *Rural New-Yorker*, of July 21, a letter from P. Hathaway, of Milton, O., who, for twenty years raised wheat annually on one of three fields, the wheat being seeded in spring to clover, dressed with a bushel of plaster per acre, pastured the next season, and then summer fallowed and sowed to wheat the third year. "The depth of ploughing was uniform—what a yoke of oxen and a span of horses attached to a number 4 Iden plough could accomplish." The average yield of wheat for the first seven years was twenty-six bushels per acre; near the close of the term, thirty-six bushels, and now, on the same land, he had wheat growing which will yield from twenty five to thirty bushels per acre, and this sown on oat stubble with two ploughings. "The midge," he adds, "for a time was a baffling pest, but now, when we escape its ravages, the land proves itself unimpaired in fertility."

While we would not advocate any severe course of cropping tending rapidly to exhaust the soil, we would advise farmers to grow all the clover and grasses possible, if they would keep their farms fertile and productive when devoted to grain. As long as soil with the aid of a bushel of plaster per acre will grow heavy crops of clover, we need not fear but it will grow grain crops at suitable intervals without further application of manure. We may find it most profitable to feed the grass grown to stock, taking the manure they supply meanwhile in return; still this would only be grass in another and (for this purpose perhaps) better form, with some additional elements gained from the animal organism through which it has passed. But we did not intend to attempt any discussion of this branch of the subject.

Among the questions proposed to every competitor for a farm premium by our State Agricultural Society, is this: "What do you consider the best mode of improving the soil on your farm?" with reference to the different kinds of soil, clay, sand or gravel; and it is curious to observe how uniform have been the answers received. One (in the Transactions of '58) ploughs greensward under in the spring for corn; "likes to have a coat of grass on the turf to turn under;" some apply manure during the course of cropping before again seeding to grass. Another says: "My method of increasing the product is by the use of plaster (sown on clover;) on the 'home farm' I also use barn-yard manure." Another top-dresses his meadows, to increase the growth of grass with a portion of his stock manure, while another puts all his manure on his newly seeded grass lands. These are mostly dairy farmers, who yet grow a considerable share of grain for home consumption.

Turning more particularly to the grain growing farms, we still find grass, and clover particularly, the basis of their improvement. "A clover lay of two or three years turned under in May for corn, or in August for wheat," is the general rule, applying manure, if at all, to the corn crop before ploughing. Another takes care to return to grass before his soil is over cropped with grain, depending upon the former for the power to produce the latter, and we may say that it is a dependence not likely to be misplaced, if we give the grass crop the attention which it merits both from its intrinsic value and the place which it must hold in all self-sustaining, farm-improving systems of agriculture.

"When we manure our meadows plentifully," says Thaer's *Principles of Agriculture*, "we are quite sure of a sufficient supply for our arable land," and when we find a farm under management rendering it capable of producing good crops of grass for pasturage or mowing, as said before, we may rest assured that it is really fertile and may easily be continued so. A limited supply of manure, we think, would go farther if applied early in the fall (in ne state) on sward land than in any other ay. It would tend largely to thicken ne turf by increasing the growth of roots nd leaves beyond what would otherwise ake place through the autumn and winter, s well as giving it an earlier start in pring—benefitting, in fact, both as pro- ection and nourishment. Its value would e enhanced by this result, and the turf, hen ploughed under, would furnish a rich anuring for any desired crop. Deep oughing, draining, irrigation, any means promote grass growing, will give us at ne same time profitable grain farms on all ils suited to its production, as, indeed, to ne kind or another, most soils are.

Country Gentleman.

Manure—How Applied.

There are a diversity of opinions enter- ined in regard to the best mode of apply- g stable manure to land. The early riters in this country, and among them udge Buell, the founder of the *Albany ultivator*, claimed that the only proper ode of applying manure was to spread it pon the surface and plough it under imme- ately, so that the volatile portions might ot be lost in the atmosphere, but be at nce absorbed by the soil. They also con- nded that manure in its long or unfer- ented state was best, and should be ap- ied and ploughed under for hoed crops, uring the cultivation and growth of which would become decomposed and reduced the best condition in the soil for the suc- eeding grain crops. So fearful were ese farmers (of the old school) that the anure would sustain loss by the escape ammonia, that they would haul it out ly so fast as it could be spread and oughed under on the same day. This l looked very well in theory, and we, for long time, followed it in practice. Later perience, however, of the best chemists d most observing farmers, has clearly monstrated that under ordinary tempera- res very little ammonia is given off by anure when spread upon the surface.—ese observations have also proved that anure in a fine, well-rotted state is best; at decomposition must have so far ad- nced that the substance of the manure ll readily be given off in solution with ch returning shower to the roots of the owing crop.

In ordinary farm culture it is undoubtedly best to apply manure in the fall as a top-dressing to grass and clover, where these crops are to be turned under for corn, wheat or potatoes. Manure thus applied greatly increases the growth of grass, yielding a good crop for pasturage or hay, leaving a largely increased amount of vegetable matter in the roots, &c., of the grass, to be ploughed under as manure for the subsequent crops.

Land under constant cultivation, as in garden vegetables, &c., requires to be manured in a different manner. The best mode of manuring such land, is to apply it to the surface in a finely divided state, and incorporate it with the soil by shallow ploughing or with the harrow. If manure is covered deep, on light sandy soils, all its enriching qualities filter through the soil and are soon lost to the crop. On more heavy, stiff soils, manure applied and mixed near the surface, proves highly advantageous, not only by enriching the soil, and thus promoting the growth of the crop, but it renders the surface more open and porous, admitting the air and heat to the roots of the plants, as well as giving off to them, in solution, with each succeeding rain, their enriching properties.

The value of manure is often greatly impaired while it remains in the yard, or under the eaves of the sheds and stables, where the most valuable portions are washed out and carried off in the form of drainage. Yards and stables should be so arranged that the water from the roofs could be carried off in another direction, if not required to fill cisterns for the use of the stock.—*Southern Homestead.*

From the Country Gent. and Cultivator.

Cultivation of the Pea-Nut.

Messrs. Tucker:—I see by the 4th number of the present volume of the *Country Gentleman*, that a correspondent wishes to have some information respecting the cultivation of the pea-nut. As I have some little experience in the cultivation of this article, and lest some more experienced hand should neglect to supply the desired information, I shall state what I know on the subject.

The article is called by a variety of names in this part of the country, such as pea-nut, ground-pea, pinder, gowber-pea, &c. The ground should be rich and well broken up. It ought to be of such a description as might be expected to produce a good crop of corn. It ought to be laid off in ridges about three feet apart. A shallow furrow run with a shall plow along the centre of each ridge prepares the ground for the seed. The pods which contain from one to three peas each must be broken, and the peas planted in the drill from one foot to eighteen inches apart, and covered with a hoe about one one inch-a-half deep. They ought to be plowed and hoed three times during the season, to destroy the weeds and keep the ground loose. The pea vine while growing sends up a perpendicular stem about a foot high; about this stem many others shoot out in all directions, and run about fifteen inches along the surface of the ground. These runners have joints about an inch and-a-half apart. At each joint a strong root strikes down into the ground about two inches deep; at the end of this root the pea-pod is formed, and there comes to maturity. Some farmers cover these lateral vines with earth, while others leave them bare all the time. It is not agreed which is the better mode.—When ripe, one bunch of vines will have from one to two quarts of peas. Some planters cultivate them in hills like corn, but I prefer drills. One acre will produce from thirty-five to fifty bushels of peas which usually sell at $1 per bushel in our markets.

JOSEPH McKEE.

Application of the Lime Light.

For some evenings past the completed portions of the Westminster Bridge has been lighted by the new lime light, and has presented a brilliant appearance. There are ten lights on the bridge—about one-third of the number of old gas lights.

The light is of a pure white color and of dazzling brilliancy, making all the old gas-burners in the proximity appear as dull as though they were burning in the bright sunlight of noonday. It was to this description of light that Prof. Faraday referred, when he stated that it was so intense that it could be distinctly seen for a distance of ninety-five miles, and the correctness of this statement was verified during the ordnance survey of Scotland, when one of these lights, placed at a station mark on the top of Ben Lomond, was distinctly seen at the Koock Layed, between ninety and one hundred miles distant. A single jet of the lime light of medium size is equivalent to forty argand, or eighty fishtail gas-burners, or to four hundred wax candles; and its intensity and brilliancy may be increased by augmenting the quantity of gas supplied. As compared with the illuminating power of common gas, a single jet, consuming four feet of the mixed gases of hydrogen and oxygen, is said to be equal in illuminating power to that obtained from four hundred feet of ordinary gas.

The mode by which the light is produced is by the combustion of lime under the great heat caused by the flame of the mixed gass. A stream of common gas, which is used instead of pure hydrogen, is conducted through one pipe, and a supply of oxygen is sent through a second one, each being attached to separate gas holders. These pipes terminate near the lamp in one single tube, where the gases are allowed to mix in their way through a curved jet, to what may be called the wick of the lamp, which is simply a lump of lime held in close proximity to the mouth of the curved tube by a piece of metal. In lighting the lamp the first step is to direct the stream of hydrogen upon the lime; it is lighted, and gives forth a small flame of pale yellow color. In a few seconds after, this pale color gives place to a deep red, caused by the combustion of the metal calcium in the lime, under the great heat of the hydrogen flame. When the lime is in this state the oxygen is turned on, and instantly the bright white light is produced, which will continue as long as the "wick" remains unconsumed. The supply of lime is kept up by the action of simple clock-work machinery, which raises the material as it burns down, at a rate of speed varying according to the progress of the combustion. There is nothing of an expensive character about the light, and with any ordinary care it may be used with perfect safety.—*London Observer.*

☞ The great Fair recently held in St. Louis yielded to the Association a profit of $17,000. Above $32,000 were expended in premiums, if reports are correct, and other expenses are estimated at $10,000.

The N. C. Planter.

RALEIGH, NOVEMBER, 1860.

☞ Subscribers receiving the Planter with a *cross mark* opposite their address, are thereby notified that the No. thus marked closes the time for which they have paid, and unless renewed, the paper will be sent no longer. We earnestly request all who find the cross mark on this No. to promptly forward the money for the Planter another year, and if possible, send another name (or a club) along with it.

The cash in advance plan is now adopted by all the papers of the country, and we believe our subscribers will like it better than the credit system; hence, we have adopted it, and must rigidly adhere to it. No one will therefore feel agrieved when he finds his Planter discontinued, if he neglects to send on money to renew. *All* will be treated alike. We trust, however, all will like us so well, that each will send on his renewal as soon as he sees the *cross mark.*

The Rights of Agriculture Generally—The Aggressions on, and the Rights of the South Particularly.

We do not design to treat our readers with a political disquisition. As the conductor of an Agricultural Journal, we have no politics. In this number, written on the eve of a most momentous crisis, we would invite your attention to a few reflections on the abuses of the most useful and virtuous interest—agriculture—and the rights, privileges, and immunities of the South under the constitution. We exhort you to remove the first, to assert and maintain the latter at all hazards and to the last extremity. Throughout the length and breadth of Europe and Asia, this interest is subjected to the severest exactions, and no where, except in the United States, does it enjoy equal rights with other enterprises of industry, and here, it is contracted by governmental regulations for the encouragement of other interests. In other countries, agriculture is required, by law, to feed and support all those engaged in any other employment; in this, to encourage, foster and protect manufactures, banks and every other monopoly. Abroad, the cultivators of the soil are treated with contempt and considered the menials of the land; at home they are lauded in the messages of our Presidents and Governors; in the speeches of our representatives as the mainspring of the country whilst all other classes are bolstered up by legislative enactments, they are left to take care of them selves. The idea of muddying the fountain to render the streams pure and limpid, is the offspring of ignorance. At the expense of agriculture, privileges for the benefit of other interests are being reared around and over her, whilst she is taught to believe that all this is done for her benefit, encouragement and protection. Agriculture is the little fountain from which large streams flow, the little acorn from which the tall oaks grow; nourish it, and over these large streams, the tall oak, put up by the ship carpenter, will glide majestically, laden with the rich products of her labor. You might as well undertake to look for effects without a cause, as to foster other industrial pursuits by clogging the wheels of agriculture. Capital invested in any branch of industry, save that of agriculture, looks to government for aid and protection.—Taxes, bounties, and monopolies are imposed and granted for this purpose; and who pays the cost? Poor old mother earth! whilst not a single bounty is forked over to her by capital in any other business; she pays for all the lottery tickets, and draws all the blanks in the great scheme of underwriting the legislation of statesmen, and bearing all the burdens of government. The object of society in establishing and supporting government, the security and protection of their labor and industry. It should never be perverted by transferring the fruits of the labor and industry of one class, for the encouragement and protection of another. Every tub upon its own bottom. This, we have been taught to believe. is sound, orthodox, political economy. Eleemosynary institutions alone justify a departure from this principle, and they are becoming too common and extravagantly expensive. Laws transferring the fruits of industry from one class, for the benefit of another, are legal frauds, extracting power and income from the majority, the agricultural interest, for the benefit of the aristocratic minority.—These exclusive rights, created by government, and bestowed upon the minority at the expense of the majority, create, in society, two classes; the one paying, the other receiving these contributions. Agriculture is the victim of this iniquitous discrimination and unjust exaction, and those engaged in it, made slaves to the avarice and ambition of the privileged, pampered clases. Thus, the farmers are taxed in their lands, slaves, houses, carriages, horses, clothing, liquors, coffee, tea and salt, to support the banks, intended only for the benefit of commercial operations; protecting duties for the benefit of manufactures. To prevent the further continuance of these aggressions, the farmers have the remedy in their own hands, the right of election, the proper exercise of which will shield them against the oppressions of the present misrule. We invite the agricultural interest of the country to make an examination into this matter. It will discover that a blind confidence in others, an inattention to its own business, will not be a sufficient safeguard for its own freedom, happiness, and prosperity.

To us it is evident that no interest can ever be long free, prosperous, and flourishing which blindly confides in a coalition of all other classes, the object of which is to draw from it all their power, wealth and influence. The agricultural interest must be as watchful, vigilant and as well informed as its adversaries, or it will soon become their victim and slave. To avoid this direful calamity, agricultural statesmanship is indispensable. Those who ridicule the pretentions of farmers to a knowledge of this science, design, by persuading them to repose a blind confidence in others, founded upon their right of electing their representatives and other officers of government, to expose them to their machinations. How can the cultivators of the soil make judicious elections when they are incompetent to judge of public measures by the lights of their own interests?

The moral consequence of this ignorance, in the agricultural world, is, that the social virtues, intercourse, and happiness of society gradually become the dependant of and are regulated by those who are continually substracting their support and affluence from it. To avoid this calamity, this leprosy of society, the continuation of its social intercourse demonstrates the virtue, the wisdom, the necessity of agricultural information, and statesmanship. To show that we are not combatting wind-mills, chimeras dire, and phantasmas of a distempered imagination, we invite a retrospection of the legislation of the country, from the adoption of the constitution, a comparison of the laws creating and fostering privileges and exclusive interests with those for fostering agriculture. The result of this investigation will satisfy every intelligent mind that the legislative influence of the agricultural interest is not sufficiently exerted. The agricultural interest of the country has suffered, is suffering and will continue to suffer under the misgovernment of professional politicians. The time has come when agricultural statesmanship should exercise a controlling influence in this confederacy of States.—The freeholders, the owners and cultivators of the soil, constitute the main class, the strength and support of all others in society, and must have and feel a deeper and more abiding interest in the making and execution of the laws affecting the rights of persons and property. The farmer must be educated in agricultural statesmanship, in selfdefence. Northern fanaticism, sectional delusion, political propagandism are now shaking the union to its very foundation. The North, the hive from which all the insects of evil swarm, now endangering the peace and tranquility of the country, is almost of one mind, whilst the South is divided. Will a reaction in the popular feeling come in time to avert the impending danger, and repress the irrepressible conflict and save the country? Would to heaven it may, and teach the people, in future, to guard against the machinations of political demagogues who have so long ruled and ruined the country for which our fathers fought, bled and died. To remove these difficulties at once and forever, the farmers should take possession and control of the government. Southern slavery, upon which Southern agriculture depends, must be maintained and extended, not as a moral, social, and political evil, but as a God send. To accomplish this, the advice of Helper, the earthly demon, must be disregarded, resisted, at this eventful crisis, whenever, wheresoever and by whomsoever intimated.

Modern science has reflected a light on Southern agriculture and Southern institutions, well calculated to develope a Southern policy suitable to the social condition of the South, and founded in the true principles of political economy, that will endure the test of time. Government and its administration is not a science founded in the eternal laws of nature, as held by many political mountebanks of the day and age, for this would make all government the same, throughout the civilized world. It is an institution founded on the situation, circumstances, condition and wants of society. These vary, and are determined by the latitude, climate and soil; hence the variety of governments adapted thereto. We hold, then, that every State, nation or country holding the right of eminent domain over its territory, has the right to form and adopt its own constitution, enact, administer and execute its own laws in its own way, subject only to the constitution. If the soil and climate of North Carolina are adapted to the growth and cultivation of cotton, has Maine a right to prohibit its production here, because she cannot grow it? If they shoe their oxen, have we not a right to let ours go barefooted? If Massachusetts prefers free labor, has she a right to interdict slave labor here? Why, then, should the North undertake to interfere with our Southern domestic institutions? Northern abolitionism was born in hell; Southern slavery is authorized by the law of God. The authors of the one, will rule in perdition, whilst the friends of the other will serve in heaven.

Agriculture never flourished in any age or country while nursed in the lap of ignorance. It is the offspring of civilization, rocked in the cradle of science, and its future progress depends upon a knowledge of the sciences of chemistry, botany, and geology.

Have the people of the South any thing to prevent the patient investigation of their political rights and duties, and the advancement of their agriculture? Yes, the dogmas of Wm. H. Seward, aided by the organization of the "Wide Awakes," ignoring the most important political principles developed in the 19th century, are arresting our civil, political and social progress, disturbing our equilibrium and rendering civil war and bloodshed imminent.

What now shall be the course of the South; further compromise and submission, or defiance? Let the history of the past answer.

How often has the prerogative of compromising this slavery question, by unconstitutional stipulations, been usurped by Congress! And how futile and disastrous to the peace of the country have all the emperical expedients of Congress to effect a settlement by compromising away the equality and rights of a great portion of the family of States, proved in the end? When the application of Missouri, the first State formed out of the territory purchased from France by Mr. Jefferson, for admission into the Union, was made, Congress usurped the power of settling the slavery agitation, and committed the fatal blunder of looking to bargain and compact between its own members, outside of and in contravention of the constitution. If they had left it to the people of the several portions of the new domain, when they should organise themselves, severally, into States, for admission into the Union, to determine the character of their domestic institutions, requiring Congress, in the mean time, to exercise its exclusive sovereignty over the nascent communities for the prevention of any determination of the slave question, they would have planted the peace of the country, now involved in this question, on a firm and lasting basis.

Instead of this, it adopted the arbitrary, unjust, unequal and unconstitutional rule of excluding the South absolutely and forever from all the federal domain lying North of a line, cutting the then new acquisition into portions bearing the ratio of three-fourths to one fourth, and giving the North an equal chance with the South in the one fourth of that territory lying South of the line—as to this one-fourth, *only* adopting the constitutional principle of allowing the people of the States wh should be formed from the territ of the line, to determine, at the term of arriving respectively at the period of constitutional maturity, the character of their domestic institutions.

Let us consider how this act of injustice and usurpation injured the South. 1st. It deprived her absolutely from participation in three-fourths, and by probability, in a large portion of the other fourth of the common domain bought by the common treasure of all the States of the confederacy. 2d. It reflected upon her domestic institutions, and degraded her from her equality of rank and rights in the Union, by ingrafting on the Statute books of the confederacy, the idea which has furnished the staple for all the abuses and insults which has been heaped upon our section by the infidels, scoundrels, and thieves of the North, from that time to this.

This outrageous, unjust, and self-engendering Missouri restriction, not the Missouri compromise, for there is a vast and essential distinction between them, was invested for a long time with a quasi sanctity and immunity in the mind and heart of the nation, which induced many men, even Southern men, to support and venerate it, with a knowledge of its injustice to the South; more than this, to give credence to the idea on which it was based, that slavery was a moral evil, a political and social sin which should be ostracised and confined within its then existing limits. It established a precedent, a dangerous precedent, for Congressional compromises and compacts, not only unwarranted by, but in express contravention of the constitution, as the means of adjusting sectional disputes, and especially of pacifying the aggressive spirit of the North; a precedent which Congress has observed and copied on every occasion whenever the agitation of the slavery question has been renewed by the North, from that period down to the distinguished, and ever to be remembered epoch in the history of the country, marked by the passage of the Nebraska–Kansas bill.

In the annexation of Texas, this miserable precedent and restriction was applied, and again, in 1850, not by perpetuating the Missouri restriction, but by a new *compromise* and piece of Congressional usurpation and imposition. In virtue of this last outrage, this new compromise, the larger and much more valuable portion of the territory South of the Missouri line, embracing the whole Pacific coast South of Oregon, was admitted as a free State, on the application of the Sandwich Island, Chinese and Cosmopolitan adventurers that had been attracted there by gold a few months only before, seconded by a few residents and American soldiers, officers, and other adventurers, and a few of the rest of mankind.

To admit California as a free State, to acquire the whole Pacific slope to free soil, the Northern members of Congress, free-soilers, abolitionists, id genus omne, in 1850, agreed that Utah and New Mexico should be organised as territories, under the true principles of the constitution, and in repudiation of the principle of exclusion embodied in the Missouri restriction.—Agreed, too, that the constitutional obligation enjoining the restoration of fugitive slaves to their masters should be recognized and enforced by a stringent act. And, yet, in four years after, when Kansas and Nebraska knocked at the door of Congress for territorial organization, and the question recurred, whether, the Utah and New Mexico acts, the constitutional rule for determining the subject of slavery, should be observed, or the unconstitutional rule of 1820, the North protested against their own act, their own bargain, their own compromise of 1850, and insisted upon going back to the old abrogated bargain of 1820. On this question, much to their credit be it said, all parties at the South were united, and aided by the national democracy of the North, the constitutional rule prevailed, the Missouri restriction repudiated as in 1850, regardless of any Congressional compact, bargain, or restriction whatever. Thus it was solemnly determined by the only national organization in the Union, in the passage of the Nebraska–Kansas act, that the constitution should be the rule in deciding the slave question in the territories and new States. This measure, on which all good and true men at the South are determined to sink or swim, live or die, survive or perish, was opposed by every whig, free-soiler and abolitionist North, in both houses of Congress.

In 1856, the question, whether the constitutional rule should prevail in the settlement of this long agitated question was submitted to the people for the first time. The decision is a part of the history of the country. Since then, for the purpose of impairing and destroying the force and validity of this constitutional rule as settled and determined by the people, a construction not warranted by their adjudication, is now being attempted, and again, in the year of our Lord, 1860, the issue has come up before the same tribunal, the people! May God help the right and save the Union.

OUR STATE FAIR.

Pursuant to public notice, the State Fair of North Carolina was opened on the 16th ult.—the weather unusually fine—and continued on the 17th and 18th; the inclemency of the weather on the 19th, prevented all further proceedings on the Fair grounds. The attendance was large, and exceeded that of any previous fair. On the 18th, the number of persons present was variously estimated at from seven to ten thousand; great interest and enthusiasm prevailed.

Amid the hurly burly and bustling operations of a large State Fair, many things escape observation, and much valuable information which we would like to communicate to our readers, lost. This will always be the case when more work is laid out for a fair than can be well attended to, both by the managers and the people. There are too many trifling and insignificant articles on exhibition, and the great anxiety to see every thing, the large majority of which are not worth seeing, creates a hurry and confusion, and prevents that careful examination of such articles worth seeing and the inspection of which might result in some benefit.

We make these remarks for the purpose of inviting that attention to the subject which its importance demands. The work of a State Fair should be simplified and narrowed down to the immediate wants and necessities of Agriculture and the Mechanic Arts. The attention of the crowd is too much diverted to the sports and pastimes; the horse-trotting and mule-racing, to do justice to the legitimate objects of the institution, the promotion of agriculture and its kindred branches; and so long as these outside influences are at work, so long will the best interest of the fair be neglected. The legitimate object of a fair is to examine, compare, and thus to test the merit of each and every specimen exhibited; ascertain the modes of cultivation, the growth, and the amount of production, per acre, of all varieties of crop; discuss, publicly, at the fair grounds, for the benefit and instruction of the people, the various modes of cultivation suggested; condemn the wrong, and recommend the right—but it will never be done; cannot be done until the time and attention of all shall be directed to the fair itself.

It becomes our painful duty to notice, and we do it with regret, that during the whole of the fair season the political parties availed themselves of the opportunity of holding political meetings, and thereby attracting the attention of the people from the consideration of the duties which brought them together. Instead of attending the meetings of the Agricultural Society, every night, in the Common's Hall, some went to the Court House to hear the politicians, others attended the exhibitions and performances of the Parker Family and Baily Troupe, to laugh and grow fat. We have no motive in making these remarks other than to serve and promote the great interests of agriculture; and whilst we are conducting a journal of that department of industry which feeds and clothes the whole world, we shall discharge our duty independently and fearlessly.

We did not make a catalogue of all persons and things at the fair, and now it is over, no one will be so unreasonable as to expect an enumeration of all on exhibition. A general outline is all we can afford—beginning with the Ladies' Department, for they are entitled to the preference in all things.

FLORAL HALL.

As we entered the Hall, the crowd, the perfect squeeze in attendance, manifested the interest as well as the curiosity felt in this department. Here we beheld many beautiful and exquisite specimens of art and taste, among them were the following: many pretty paintings, wax flowers, a collection of rich embroidered and worsted work; a neat hand-made rug: a silk dress, neatly made by hand and tastefully trimmed; cushions, quilts, needle work, home-made carpeting. specimens of wax work, sleeves, collars, and transferred work; some very fine crayon and water-color drawings; crochet work; many articles of dress, finely made. We must not omit to mention a large piano coverlid, made by an old lady 73 years of age; it was entitled to a premium for its superior finish. We have not mentioned a hundreth part of the very pretty and splendid specimens on exhibition in Floral Hall, so highly ornamented, and decorated with Evergreen and fine Herbarium. The ladies performed their part well.

POMOLOGICAL HALL

Was well supplied with every kind of fruit grown in the State and of the season, by those enterprising pomologists, Westbrook & Co., and the Messrs. Lindley.

PLANTER'S HALL

Was well stored with meats, vegetables and other productions of the farm. The large pumpkins and mammoth beets, onions, squashes, samples of corn, wheat, oats, meal and flour exhibited were excellent, and prove, notwithstanding the severe drought in many parts of the State, that there will be no famine in the old North State for the next twelve months, and if the people will subscribe to the North Carolina Planter, we will teach how to guard against this calamity in all time to come.

MECHANIC'S HALL

Did not equal, in quality, its last year's exhibition. Mr. S. Harp exhibited a fine two-horse carriage, and a one-horse buggy, which took the first premium.

Col. Hutchins exhibited Saddles and Harness of superior make, and all his own work, better and cheaper than can be imported. Here, also, we found some superior cabinet furniture, consisting of bedsteads, beds, matrasses, &c., and many other articles too tedious to mention.

The agricultural implements on the ground were many, fine, and some splendid, and the most approved now in use. Among these were Frercks & Raeder's cultivators, plows, corn-shellers, seed-sowers, horse-power thrashers, thrashing, separating and cleansing machines, tobacco presses and fixtures made at their foundry and machine works, Salisbury, North Carolina.

There were many other implements from Baltimore, Md.; Milledgeville, Georgia, and Petersburg, Va., and Norfolk, Va., which we shall not undertake to specify.

We found the champion Keystone Cider Mill on the ground, with many recommendations in its favor, made at the Eagle Foundry, Tyro, Davidson County, North Carolina.

Last, though not least, is the plow invented and patented by W. B. Williams, Warrenton, N. C. We are decidedly of opinion that this is the best and cheapest plow in the State. It is eight plows in one—*multum in parvo.* We regret that so little attention was given to this department. The farmers did not examine these implements with sufficient care and attention; but few sales were made, and few orders given for them. The farmer's tools are his riches, with them he feeds the hungry and clothes the naked; with them cotton is made to grow. Cotton is king, and every good farmer in the South should be his subject, or abolitionism will be his master.

The exhibition of stock, though not so large in some departments as last year, was equal, and in some respects superior to the show of 1859. The horses we thought decidedly superior in number and quality.

Below, we give a list of the premiums as awarded by the different committees.

AWARD OF PREMIUMS

At the Annual Fair of the State Agricultural Society of North Carolina, held in this City, on the 16*th*, 17*th*, 18*th and* 19*th of October*, 1860.

LIVE STOCK.—CLASS A.

DR. JAMES E. WILLIAMSON, Superintendent.

Thoroughbreds.

Best stallion, 4 years and over, J F Slade's Lavega,	$30
2d do Dr F Cain's Protection,	20
Best brood mare, 4 years and over, D M Dunham's Mary Blevins,	20

The following horses, not *proven* to be thoroughbred, were recommended by the judges to the Executive Committee for discretionary notices, as being fine horses; and each were awarded a silver cup worth $10. It is proper, however, to state that the owner of Orphan Boy, telegraphed for, and presented for the inspection of the Executive Committee, a certificate of blood which was deemed thorough:

M L Citizen's Orphan Boy,	silver cup,	$10
J M Hicks's Scoredouble,	do do	10
Hilliard Thomas' Alvarack,	do do	10

Quick Draft and Saddle Horses.

Best stallion, 4 years and over, R A Cocke, $30
2d do M J Faison & Bro., 20
Best stallion, 2 years and under 4, Dr W R Holt, 15
2d do Dr P Babcock, 10
Best stallion, 1 year and under 2, J P H Russ, 10
2d do, Sylvester Smith, 5
Best brood mare, 4 years and over, Geo. W Crocket, 20
2d do, J P H Russ, 10
Best brood mare, 4 years and over, with foal by her side, J A Smith, 25
Best sa'dle horse, mare or gelding R A Cocke, 15
2d do, M Bringle, 10
Best pair matched ca'ge ho'es, G W Wynn, 20
2d do, Jefferson Fisher, 10
Best single harness horse, S G Hayes, 15
2d do, W H & R S Tucker, 10

A very fine filly, owned by Willie Perry, too young to comply with the printed requisitions, was highly recommended to the Executive Committee by the judges. The committee awarded a premium of $5, accordingly.

LIVE STOCK.—CLASS A.

NEEDHAM PRICE, Superintendent.

Heavy Draft Horses.

Best stallion, 4 yrs and over, I Bradshaw, $20
2d do, T M Canaday, 10
Best stallion, 2 years and under 4, Sampson Kimrey, 10
Best brood mare, 4 years and over, with foal by her side, Mrs M E Myatt, 15
2d do, do do 10
Best pair of heavy draft horses raised in the State, Smith Charles, 10
2d do, M S Roberson, 5

Jacks and Jennets.

Best imported jack, with approved certificates, J W Latta, 25
Best jack raised in the State, Davolt Little, 20
2d do, Calvin J Rogers, 10
Best jennet, raised in the State, J W Latta, 10
2d do, Wm Russell, 5

Mules.

Best pair mules, 3 years and over, raised in the State, Peterson Dunn, 25
2d do, Oliver Lamb, 10
Best single mule, I W Boothe, 10
2d do, W R Poole, 5
Best mule colt, Mrs M E Myatt, 10

LIVE STOCK.—CLASS B.

CHARLES L. HINTON, Superintendent.

Cattle.—North Devons.

Best bull, 4 years and over, J R Jeffreys, $25
" " 2 years and under 3, Dr W R Holt, 10
2d do, Major Weaver, 10
Best bull calf, 1 year and under 2, Dr W R Holt, 10
Best bull calf, under 1 year, Dr W R Holt, 5
" cow 3 years and over, Sylvester Smith, 10
2d do, Dr W R Holt, 5
Best heifer, 2 years and under 3, S Smith, 10
" heifer, 1 y'r and under 2, Dr W R Holt, 10

Durhams.

Best Bull, 3 yrs old and under 4, P Dunn, 20
" Cow, 3 years and over, J M Crenshaw, 10
" Heifer, 2 years old and under 3, do 10

Milch Cows.

Best milch cow, giving not less than 20 quarts a day, Wm Russell, 15
2d do, do do 10
Best milch cow, giving not less than 20 quarts a day, raised in the State, Sylvester Smith, 15
2d do, W R Pepper, 10

Working Oxen.

Best yoke oxen, W D Johnson, $15
" pair fat steers, Eldridge Smith, 25
" fat steer, Dr J J Thackston, 15

Sheep.—Merinoes.

Best buck, J P H Russ, 15
" pen of ewes, not less than 2, J P H Russ, 15
Best pen of lambs, not less than 2, do do 10

South Downs.

Best buck, Dr W R Holt, 15
" pen of ewes, not less than 2, Dr W R Holt, 15

Natives or Grades.

Best buck, G W Whitaker, 10
" pen of lambs, not less than 2, do 5
" pen of fat wethers, not less than 4*, Dr W R Holt, 10

*Ten dollars awarded to Dr W R Holt for two slaughtered.

Swine.—Large Breed.

Best sow, over 2 years old, Chester, Jackson Moss, 5
Best breeding sow, with not less than 6 pigs, Chester, R W Smith, 10

Small Breed.

Best boar, over 2 years old, Suffolk, R W Smith,
Best sow, over 2 years old, Suffolk, do 5

A premium of $5 was awarded to a fine Woburn sow, 18 months old, exhibited by Dr Mason.

Grades.

Best boar, over 2 years old, E E Harris, 10
2d do, W R Poole, 5
Best boar, over 1 year old and under 2, W R Pepper, 5
Best sow, over 2 years old, W R Crawford, 5
2d do, Sylvester Smith, 2
Best breeding sow with not less than 6 pigs, W R Crawford, 10
Best lot of grade pigs, Dr P E Hines, 5

Natives.

Best boar, over 2 years old, T B Bridges, 10

Poultry.

Best lot of games, Jackson Moss,	3
" lot of Sumatra games, J M Crenshaw,	3
" lot of Wild Indian games, do	3
" pair domestic turkeys, Mrs J W Harris,	3
" pair wild geese, T H Selby,	3
" pair Hong Kong geese, Sylvester Smith,	3
" pair common geese, D P Stedman,	3
" pair muscovy ducks, Mrs M M Henry,	3
Best pair rouen ducks, Dr W R Holt,	3
" pair common ducks, R W Smith,	3

The exhibition of poultry was not satisfactory—meagre in quantity and quality.

LIVE STOCK.—CLASS B.

G. H. WILDER, Superintendent.

Grades.

Best bull 4 years and over, Wm Russell,	$25
2d do, S H Young,	15
Best bull 2 years and under 3, Dr J J Thaxton,	15
Best bull calf 1 year and under 2, Henry Mordecai,	10
Best bull calf under 1 year, do do	5
" cow 3 years and over, Wm Russell,	10
2d do, do	5
Best heifer 2 years and under 3, do	10
" " 1 do 2, do	10

AGRICULTURE—CLASS C.

W. R. POOLE, Superintendent.

Agricultural Productions.

Best variety of wheat, 1 bushel as sample, Dr W R Holt,	$ 3
Best variety corn for bread, Wm F Shultz,	3
" " corn for stock, W N Womble,	3
" " oats, D. P. Stedman,	3
" " rye, David Turner,	3
" " barley, A C Hege,	3
" " field peas, D P Stedman,	3
" " beans, B Buffaloe,	3
" " ground peas, Reuben Fleming,	3
" " sweet potatoes, a few cooked, H B Jordan,	3
Best variety Irish potatoes, B F Moore, jr	3
" " Cotton, 2 stalks as sample, Needham Price,	3
Best variety Grass Seeds, adapted to the South for Hay or Grazing, A C Hege,	3
Do. specimen of Cotton, in the Seed; not less than 10 lbs., B W Green,	5
Do. specimen of Flax, prepared or dressed, Miss S Butner,	3
Best specimen of Linseed Oil, made in the State, 1 gallon, W F Shultz,	3
Best box manufact'd tobacco, E P Jones,	10
" " smoking do. " "	2
" " of cigars, " "	5

The judges being unable to decide between the bales of cotton exhibited by Maj C L Hinton and Joseph F Cook, Esq., the Ex. Committee directed the premium to be divided between them, $10 each.

Salt Provisions.

Best ½ doz hams, regardless of age, one to be cooked as sample, Mrs J R Jeffrys,	$ 10
Best bbl roe herrings, W H Putney,	5
" " shad or mullet, " "	5

Butter and Cheese.

Best sample of fresh butter, not less than ten lbs., Mrs J A Albright,	10
2d do. sample of fresh butter, not less than ten lbs., Mrs J W Harris,	5

Flour, &c.

Best bbl family flour, made from 6 bushels of wheat, (allowing 60 lbs to the bushel,) John Wilkes,	10
Best barrel family flour, made from 5½ bush. wheat, (allowing 60 lbs. to the bushel, Dr W R Holt,	10
Best bbl. flour made from 5 bush. wheat, (allowing 60 lbs. to the bushel,) L M Gillam,	10
Best corn meal, 2½ bushels, A C Hege,	5
" buckwheat, ½ bbl, A C Hege,	5
" starch from wheat, 3 lbs., being equally divided between Mrs S G Wilson and A C Hege,	3
" starch from potatoes, 3 lbs., F W King,	3
" wheat bread, 3 loaves, Mrs L Hinton,	3
2d do. do. do. do. Mrs McKimmon,	2
Best honey, ½ gal., strained, W F Shultz,	3
" do 10 lbs., in comb, W F Shultz,	3
" syrup from Chinese sugar cane, 5 gallons, Thos Bailey,	10

Preserves, Pickles, &c.

Best specimen of preserved peaches, Miss M E Mabrey,	3
" " preserved apples, Misses DuPree,	3
" " do plums, Misses DuPree,	3
" " do quinces, Misses DuPree,	3
" " do pears, Misses DuPree,	3
" " do cherries, Miss M E Mabry,	3
Best specimen tomato pickles, Mrs R M Jones,	3
" do yellow pickles, Mrs. Primrose,	3
" do sweet pickles, Mrs P F Pescud,	3
" do tomato catsup, Mrs R M Jones,	3
" do brandy peaches, Mrs Ruffin Tucker,	3
" half bushel of dried peaches, Mrs S G Wilson,	3
" half bushel dried pears, Mrs S G Wilson,	3
" half bushel dried apples, D P Stedman,	3 3
Best 10 lbs dried grapes, Mrs W F Shultz,	3
" do do plums, Mrs S G Wilson,	3
" do do cherries, Mrs S G Wilson,	3
" do do blackberries, Mrs W F Shultz,	1
Best citron, Mrs P F Pescud,	1
" apple jelly, Misses DuPree,	1
" quince jelly, Misses DuPree,	1
" grape jelly, Misses DuPree,	1

" nectarine jelly, Mrs J Kron,	1
" prune jelly, Mrs F J Kron,	1
" plum jelly, Mrs R Williams,	1
" tomato jelly, F A Graves,	1
" jar pickled cabbage, Mrs E A Thompson,	1
" do do cucumber, Mrs L J Norman,	1
" bottle raspberry wine, Mrs P F Pescud,	1
" do grape wine, Mrs S G Wilson,	1
" do blackberry wine, Mrs R M Jones,	1
" do peach cordial, Mrs R Williams,	1
" jar chrystalized peaches, Misses DuPree,	1

Fruit in Cans.

Best peaches, in cans,	Miss Jane Reich,	$ 3
" nectarines,	" Miss Jane Reich,	3
" grapes,	" Mrs J R Williams,	3
" cherries,	" Mrs W F Shultz,	3
" gooseberries,	" " "	3
" quinces,	" Miss Jane Reich,	3
" tomatoes,	" Misses DuPree,	3
" strawberries,	" Mrs J R Williams,	3
" raspberries,	" Mrs W F Shultz,	3
" green corn,	" Mrs J R Williams,	3

Native Wines.

Best dry Catawba, D M Lewis,	$ 5
" sparkling wine from any other grape, Burbank & Gallagher,	dip
" wine from the Isabella Grape, A C Hege,	2
" wine from any other grape, E J Kron,	5
" and greatest variety of wines, not less than 2 bot. of each, Mrs Thompson,	10
" cider in bottles, not less than 1 doz. bottles, S Smith,	5

The Executive Committee awarded a premium of $10 to A C Hege, for the largest variety of wines, exhibited by him.

Vegetables.

Best celery, 6 stalks, Mrs M M Henry,	2
" cabbage, Dr E C Fisher,	2
" egg plants, J W Pierce,	2
" squashes, A C Hege,	2
" pumpkins, two, Peterson Dunn,	2
Best onions, 1 peck, Peleg Rogers,	2
" beets for table, six, A C Hege,	2
" sugar beets, 6, E C Fisher,	2
" parsnips, six, B F Moore, Jr.,	2
" carrots, six, S W Whitaker,	2
" salsify, six, A C Hege,	2
" Irish potatoes, 1 bush. B F Moore, Jr.,	2
" sweet " " H B Jordan,	2
" Turnips, 1 bushel, Dr E C Fisher,	2
" Citron Melon, Mrs A H Tucker,	1

POMOLOGY.

Fruit adapted to the South.

Best and greatest variety of Apples, 69, Westbrook, and 48, Lindley, each,	$ 10
Best and greatest variety of Pears, 70, Westbrooks & Co.,	10
Best and greatest variety of Grapes, 49, to 54, A. Hege,	10

Fruit Trees adapted to the South.

Largest and best variety of Apple Trees, Westbrooks & Co. and Thomas Carter, each,	$ 5
Largest and best variety of Pear Trees, Westbrooks & Co. and Thomas Carter, each,	5
Largest and best variety of Cherry Trees, Westbrooks & Co. and Thomas Carter, each,	5
Largest and best variety of Peach Trees, Westbrooks & Co. and Thomas Carter, each,	5
Largest and best variety of Nectarine Trees, Westbrooks & Co. and Thos. Carter, each,	2 50
Largest and best variety of Apricot Trees, Westbrooks & Co. and Thomas Carter, each,	2 50
Largest and best variety of Plum Trees, Westbrooks & Co. and Thomas Carter, each,	2 50
Strawberry Vines, Westbrooks & Co.,	2
Gooseberry Vines, Westbrooks & Co.,	2
Raspberry Vines, Westbrooks & Co.,	2

So very fine and splendid was the exhibition of Apples by both Mr. Westbrooks, 169, and Mr. Lindley, 48, that the committee was unwilling, and in fact unable, to give the preference to either, and on account of the excellence of both, concluded to award to each the highest premium of $10.

In regard to the largest and best variety of Fruit Trees, the Committee was somewhat embarrasssed. Westbrooks and Co. had the largest *variety* of Trees, but Mr. Thos. Carter's Trees were unusually vigorous and fine; we therefore divide the premiums between them equally.

MECHANICS.—CLASS D.

PETER E. SMITH, Superintendent.

Plows.

Best 3 horse plow, J H Thompson,	$ 6
" " manufactured in the State, Frercks & Raider,	6
Best 2 horse plow, E Whitman,	5
2d do " " R Sinclair & Co.,	4
Best " " manufactured in the State, J H Thompson,	5
Best " " Frercks & Raider,	4
Best single horse plow, J H Thompson,	4
2d do " " R Sinclair, jr., & Co.,	3
Best " " manufactured in the State, Frercks & Raider,	3
Best subsoil plow, R Sinclaire, jr., & Co.,	5
" " manufactured in the State, Frercks & Raider,	5
Best double mouldboard plow, R Sinclaire, jr., & Co.,	5
2d do do E Whitman & Co.,	4
Best wrought turning plow, manufactured in State, Frercks & Raider,	5
Best potato digger, E Whitman,	5

In addition to the above, the committee appointed to judge, call the attention of the Executive Committee to hill side plough, exhibited by Mr J H Thompson, and cotton sweep plough exhibited by the same, as worthy of special notice.

Harrows, Planters and Sowers, Rollers, Cultivators and Grain Drills.

Best harrow, J H Thompson,	$ 5
2d do R Sinclaire, jr., & Co.,	2
Best seed planter for horse or hand power, for hills or drills, R Sinclaire, jr., & Co.,	5
2d best seed planter for horse or hand power, for hills or drills, E Whitman & Co.,	2
Best horse corn plantar, R Sinclair, jr., & Co.,	5
2 do E Whitman & Co.,	2
Best hand corn planter, R Sinclair, jr., & Co	5
“ planter for small seed, R Sinclair, jr., & Co.,	5
Best broad cast sower, J M Towles, ag't,	5
“ cultivator for general purposes, Frercks & Raider,	5
2d best cultivator for general purposes, J H Thompson,	2
Best corn cultivator, J H Thompson,	5
2d do R Sinclair, jr., & Co.,	2
Best wheat drill, Frercks & Raider,	15
“ cotton scraper “ “	5
“ cotton planter, M M Hall,	5

Threshing Machines, Fanning Mills, Hay, Straw, Stalk and Vegetable Cutters.

Best threshing machine, J H Thompson,	$ 15
“ do manufactured in the State, Frercks & Raider,	15
Best Fanning Mill, J Montgomery & Bro.,	10
2d do C Barnett,	5
Best hay, stalk and straw cutter, Frercks & Raider,	10
2d best hay, stalk and straw cutter, R Sinclair & Co.,	5
Best hay, stalk and straw cutter, manufactured in State, Frercks & Raider,	10
2d best hay, stalk and straw cutter, manufact'ed in State, Frercks & Raider,	5
Best vegetable cutter for stock, E Whitman & Co.,	5

Corn Shellers and Cob Crushers.

Best corn sheller, horse power, R Sinclair, jr., & Co.,	$ 10
2d best corn sheller, horse power, J H Thompson,	5
Best corn sheller, hand power, E Whitman & Co.,	10
2d best corn sheller, hand power, R Sinclair & Co.,	5

The executive committee awarded the annexed premiums to the following articles in addition to the above:

Ox yoke, E Whitman & Co.,	$ 1
Garden barrow, E Whitman & Co.,	1
Tobacco Cultivator, E Whitman & Co.,	1
Tobacco Press (a new and valuable invention) Tappey & Lumsden,	10
Brick Elevator, K F Crissman,	20

MECHANICS—CLASS E.

Dr. Wm. J. Hawkins, Superintendent.

Reaping and Mowing Machines, Horse Powers, Stump Pullers.

Best reaping machine, J. H. Thompson	$ 20
2d do, Frercks & Raeder,	10
Best mowing machine, Frercks & Raeder,	20
2d do, J. H. Thompson,	10
Best sweep horse power, E Whitman, & Co.	20
2nd do, Frercks & Raeder,	10

Hay and Cotton Press and Implements.

Best cotton gin, Clemons Brown & Co., J. M. Towles, ag't.	5
Best horse rake, J. H. Thompson,	5
2nd do, E Whitman & Co.,	2
Best farm and road scraper, R Sinclaire & Co.,	
2nd do, E Whitman & Co.,	
Best washing machine, Wm. Cole,	5
2nd do, F. I. Wilson,	2
Best pair mill stones, made in the State, D Davis of Moore co.,	25

Hitchcock's cider mill being on exhibition, by three different exhibitors, the Committee did not feel at liberty to award the premium to either—at the same time they will not forbear expressing their very high appreciation of Hitchcock's mill.

Carriages, Wagons, &c.

Best two-horse pleasure carriage, N S Harp,	25
“ one-horse open buggy, do	15
2d do, A Upchurch,	10
Best sulky, N S Harp,	15
“ horse cart, (dumping) J N Yarborough,	8
2d do, W F Fort,	4

The committee recommend improvement on metalic hubs for wheels, exhibited by J L Jones & Co., of Granville. A buggy with these hubs was exhibited, which had been in use four years, and there were no indications of a loosening of the spokes.

Upon the above recommendation, the Executive Committee awarded a premium of $5.

MECHANICS—CLASS F.

Dr. W. R. Holt, Superintendent.

Machinery.

Best por'ble grist mill, E Whitman & Co.,	$ 15
“ shingle or stave cutter, R. Clifford,	20
“ sewing machine, Stewart & Warren,	10
“ smut machine, J A McMannen,	10

Farm and Domestic Tools.

Best sausage cutter, E Whitman & Co.,	3
“ grain cradle, R Sinclair, jr. & Co.,	3
“ hay knife, for cutting down hay and straw stacks, E Whitman & Co.,	2
“ briar hook, R Sinclair, jr. & Co.,	2

Best weeding hoe for corn, E Whitman & Co.,	2
Best 3 hand rakes, made in the State, S Smith,	2
" 6 wooden buckets, made in the State, Makepeace & McRae,	2
Best display of cooper's ware, adapted to household use, made in the State, Makepeace & McRae.	5
" Best and most numerous collection of agricultural implements, R Sinclair, jr. & Co.,	25

The committee of examination finding Mr. Thompson and Messrs Frercks & Raeder so nearly equal in their exhibition of agricultural implements manufactured in the State, recommended to the executive committee to divide the premium between them, which they did, awarding each $12.50.

The Ex. committee also awarded a premium of $5 to two spirit barrels exhibited by Messrs Brown & Payne, upon the suggestion of examining committee.

Saddlery.

Best man's saddle, C W D Hutchings,	$ 10

MECHANICS—CLASS G.

J. W. B. WATSON, Superintendent.

Cabinet Work.

Best Desk or Secretary, made of Native Wood, W F Shultz,	$ 15
Best Bedstead, W F Shultz,	10
" Cradle or Crib for Children, W F Shultz,	4
" Rocking Chair, W F Shultz,	6
" Specimen of parlor Chairs, W F Shultz,	6
" Centre Table, W F Shultz,	5
" Toilet Table, W F Shultz,	5
" Sofa, H J Brown,	5
" Bureau, W F Shultz,	10
" Enclosed washstand, W F Shultz,	4
" Ottoman, W F Shultz,	3
" Footstool, W F Shultz	2
" Piano stool, W F Shultz,	2
" collection and variety of fancy cabinet work made by one exhibitor, W F Shultz,	20

The judges recommend to favorable notice he model of combined mattress and bedstead. Also Child's playhouse.

Shoes, Hats, &c.

est pair of men's boots, made in the State, Miller & Thomas,	$ 5
Second best, to the same,	5
est 6 pair brogan shoes, C M & G Lynes,	5
" Brogan boots, made in the State, Miller & Thomas,	5
" Straw or grass hat, Mrs, A Jones.	3

In addition to the above premiums the examining committee recommend brogan shoes . 216 for a second premium. Lot No. 236 think fully equal in manufacture to the others, but being made of hemlock leather which is not manufactured in the State, we think it proper to give the preference to the lots designated.

We cannot too favorably recommend a lot of Ladies and Misses shoes, embraced in lots from No. 96 to 99, and exceedingly regret that there was no premium on the list for such an important branch of this species of work.

In accordance with the above the executive committee awarded the following premiums:

No. 96 to 99. Shelby & son, awarded a premium of 15, for collection of Ladies & Misses shoes made in the State. A premium of $6 for No 215, exhibited by J C Carraway embracing lot brogan shoes.

Sundries.

Best lot of guns, made in the State, Armfield & Lamb,	$ 5
Best stone ware made in the State, J D Craven,	5
" leather, sole calf and kip, made in the State, R V Minor.	3
Best side of harness leather, made in the State, A F Moses,	2
Best side russet leather, R V Minor,	2
" dressed buck, sheep or goat skins, made in the State, W F Shultz,	2
Best and greatest variety of edge tools, augers, &c., made in the State, S Smith,	5
Best and greatest variety of mechanic's tools, manuf't'd in the State, W F Shultz,	10
Best lot of soap, 20 lbs., with process of making, W F Shultz,	5
Best dozen brooms, manufactured in the State, N C Inst. for Deaf, Dumb, and Blind,	2
Best doz. whisk brooms, manuf't'd in the State, N C Inst. for Deaf, Dumb and Blind,	2
Best carriage or wagon spokes, manufactured by machinery, W D Williams,	3
Best hoe handles, Makepeace and McRae,	dip

1 Sand stone cap for column or pillar, exhibited by No. 188, for which we recommend a premium of $5.

1 Rifle gun of superior finish, on exhibition by No. 181 which we think worthy of a premium of $2.50.

A model house for drying wheat, exhibited by No. 189, for which we recommend a diploma.

A hydro pult, exhibited by No. 300, from N. Y., which is a very valuable invention for watering gardens, plant beds, and putting out fires in its first stages.

A patent fence on exhibition by No. 244, a very good invention for portable or ornamental purposes.

No. 273, a specimen of drain tile, which regard as being admirably adapte purposes for which they are intended, and for which we recommend a diploma.

No. 12, Bartlet's patent refrigerator, manufactured in N. York, which we are informed by gentlemen who have used them, are all that they are recommended to be, and for which we recommend a diploma.

No. 150. An apple peeler, and corer invented and patented by a citizen of the State, for which we recommend a premium. And an exhibition by No. 147, an apple peeler and corer which we regard about as equal in merit.

No. 266. Samples of painting in imitation of black and white marble, mahogany, maple, walnut oak, &c., which are very finely finished and worthy of a premium.

In accordance with the above recommendation the Executive committee made the following awards:

No. 188, Sandstone Cap, by Whitelaw & King.	$5
“ 189, Model house for drying wheat, R V Minor,	dip
“ 305, Hydro Pult., J K Purefoy,	dip
“ 244, Portable fence, J M Pltts,	dip
“ 273, Drain Tile, H J B Clark,	$6
“ 12, Refrigerator, Bartlett & Leslie,	dip
“ 150, Apple pealer and corer, Armfield & Lamb,	$1
“ 147, Apple pealer and corer, Wm. Dixon,	$1
“ 266, Specimen Painting, P. C. Fetter,	$3

MANUFACTURES.—CLASS H.

Francis Fries, Superintendent.

Mill Fabrics made in the State.

Best piece of cassimere, not less than 15 yds, Young & Winston,	$10
Best piece of Sattinette, W H & R S Tucker,	6
“ “ Woolen Jeans, J J Q Taylor,	5
“ “ Linsey for negro clothing, not less than 15 yards, Mrs J W Harriss,	10
Best pair of blankets, Mrs Thos. Carrol,	5
“ piece of cotton Osnaburgs, not less than 30 yards, being deemed equally divided between Mrs J W Harris & E M Holt, $2,50 each.	
Best hearth rug, Mrs P F Pescud,	3
“ piece cotton or sheeting, E M Holt,	5
“ “ bedticking, E M Holt,	5
“ “ cotton serge, Mrs J W Harris,	5
“ bundle of printing paper, Forest Manf Co,	5
“ hair mattrass, William Watson,	10
spring mattress—premium divided between William Watson and Makepiece & McRae, $2,50 each.	

The Committee on the above class would respectfully direct the attention of the Executive Committee to 15 pieces striped and plain domestics, No. 366, and plain drilling, No 368, all of which are excellent. We would recommend a premium for the collection. We recommend also, blanket, No 17, for a second premium, which is well made and deserves especial notice and commendation. There being no premium offered for woolen counterpanes, we would recommend No 125 as the most deserving. We deem a piece of domestic shirting, No 25, as deserving of high recommendation. A bolt of wool jeans, domestic manufacture, No 25, we recommend for a second premium. No 446, a piece of straw matting, well deserves the premium.—Two spring mattrasses are on exhibition, No. 1 and No. 245; the latter is entitled to notice, as being the best made and of the best material, but No. 1 has an improvement in folding, in consequence of which we recommend that a premium be divided between them.

The Executive Committee direct the following awards to be made, in accordance with the above:

No. 365, E M Holt, a premium of $30 for his large collection of domestic fabrics.

No. 17 wool blankets, J J Q Taylor,	$ 2
“ 125, counterpane, Mrs S G Wilson,	2
“ 446, straw matting, Mrs M Wilder,	2
“ 25, cotton shirting and woolen jeans, Mrs Charles Horton,	3

Household Fabrics made in the State.

Best patch work quilt, (cotton,) Mrs C B Turner.	$5
2d best patch work quilt, (cotton,) Mrs H D Lott,	2
Best patch work quilt, (silk,) Mrs H L Evans,	5
“ raised work quilt, T S H Pennix,	5
“ counterpane, (woven,) Mrs J W Harriss,	5
2d do, “ “ “	2
Best counterpane, (knit,) Mrs R Tucker,	5
2d do, “ “ Mrs C M McAdoo,	2
Best pr yarn hose, (crotchet) Mrs C M Grow,	2
“ “ silk “ “ Mrs F A Graves,	2
“ woolen shawl, “ Mrs Lucas,	2
“ piece of negro woolen cloth, 18 yards, Mrs L J Norman,	5
Best piece tow cloth, 10 yds, Mrs A Jones,	5
“ “ tow and cotton cloth, Miss F Lenard,	3
“ “ linen, Miss Edith Michael,	5

MANUFACTURES—CLASS I.

Wm R Cox, Superintendent.

Fine Crotchet work in spool cotton &c.

Best worked collar, Mrs Thos. Carrol,	$ 3
“ crotcheted or embroided shawl, Mrs J L Fukerson,	5
2d do, Miss E Colburn,	3
Best lot of table mats, Mrs C L Fisher,	2
2d do, Miss S H Towles,	1
Best tidy, Miss M C Mason,	2
2d do, Miss Foltz,	1

Raised worsted work.

Best piano cover, Mrs S A Wait,	$ 6
“ table cover, Miss Mary Page,	4
“ ottoman cover, Miss D Vanhoy,	2
“ lamp or vase mat, Miss Mary Page,	1

Best sofa pillow, Mrs Jno Mengent,	2
“ 3 mariposes, Mrs Walthall,	1

Embroidery in Silk.

Best lady's dress, Mrs R W Marriott,	$3
Best lady's mantle, Miss H Lane,	6
2d do, Mrs Judge Strange,	3
Best lady's scarf or neck tie, Mrs S W Terrell,	4
Best lady's apron, Mrs C V Johns,	2
Best vest, Mrs Primrose,	6
2d do, Miss E Colburn,	3
Best child's dress, Mrs R W Marriott,	4
Best sack or spencer, Miss Harriet Lane,	3
2d do, Mrs A H Davis,	2

Knitting or Netting.

Best spec'n of knitting in wool, Mrs Jno Perry,	$ 3
2d spec'n of knitting in wool, Mrs C M Grow,	2
3d “ “ “ “ Wm Slade,	1
Best spec'n of knitting or netting in cotton, Mrs Wm Slade,	3
2d, “ spec'n of knitting or netting in cotton, Mrs Mary White,	2
3d “ spec'n of knitting or netting in cotton, Mrs. Thos Carroll,	1
Best netting in cotton curtains, Miss Ann E Walsh,	3
2d do cotton toilet cover, Miss E Steadman,	2

Fancy Work.

Best ornamental shell work, Miss E Colburn,	5
2d do, S B Pescud,	2
Best spec'n of wax flowers, Miss S Pescud,	5
2d do, D B Albright,	2
Best spec'n of feather work, Miss A Jones,	5
2d do, Miss McRae,	2
Best specimen of hair work, Mrs C P Pennington,	
2d do, Mrs A Jones,	
Best frame, leather work, Miss B Fentress,	5
2d, do Miss B Fentress,	2
Best wax fruit, Miss Anna Christopher,	2
2d do, Miss Anna Christophers,	4

Needle Work.

Best collar Mrs Ruffin Williams,	$2
Best undersleeves, Miss Martha Mason,	2
2d do, Miss M Mason,	1
Best collar and sleeves, Miss A F DuPre,	4
2d do, Miss R B DuPre,	2
Best handkerchief, Miss A F DuPre,	2
2d do, Miss Ann D Walsh,	1
Best child's dress, Mrs Myers,	4
2d do, Mrs Jno Yarborough,	2
Best linen yoke for ladies, Mrs Judge Strange,	2
“ lady's underskirt, Miss L G Brown,	3
2d do, Miss Rebecca Evans,	2
Best gentleman's shirt, Mrs L Meckey,	2
“ boy's “ Miss R B DuPre,	2
2d do, Mrs M J Pennington,	2
Infant's cap, Mrs R Williams,	1
2 specimens emb'd linen, Mrs L D Bryan,	2
5 linen bands and sleeves, Mrs R Williams,	2
1 emb'd handkerchief, Mrs Cudhy,	1

Fine Arts.

Best specimens of deguerreotypes, E Hunt,	5
“ do ambrotypes, “	5
“ do photographs, “	5
“ do col'd photographs “	8
Best do painting in oil, J P Andrews,	10
“ do do do Miss Cudhy,	5
Best specimen of painting in water colors, Miss Cudhy,	5
2d best specimen of painting in water colors, Miss Cudhy,	3
Best specimen of Grecian painting, Miss Amanda Sater,	4
2d best specimen Grecian painting, Miss J Hall,	2
Best specimen pencil drawing, Miss E Hall,	5
Best architecture drawing, T J Holt,	5
2d best architecture drawing, E Burns,	4
Best pastel drawing, J P Andrews,	3
“ minature painting, “	10
“ crayon sketch, Miss E J Hege,	4
“ oriental painting, Mrs E E Johnson,	4
2d best “ “ Mrs M A Payne,	3

DISCRETIONARY PREMIUMS.

In accordance with the recommendation of the committees on various branches, the Executive Committee awarded the following discretionary premiums, in addition to those appended to other reports:

3 medallion likenesses, Mrs Dr Mason,	$10
Photographic views, Wellfare & Haugh,	2
Case of silver ware, Henry Mahler,	5
Fire screen, Miss Mary R Smith,	1
Stand of evergreens and flowers, T Carter,	5
Tatten trimmings, Miss E Brown,	1
Best tatten collar, Mrs Atkinson,	2
Tatten collar, Mrs Emma Taylor,	1
Coat and cloth made in North Carolina, Peter Wilson,	4
Case paper weights (oil on marble) Mrs Cudhey,	1
Apple and peach leather, Mrs M E Blum,	dip
Pine burr frame, Miss M G Mason,	1
Leather work table, Mrs Thos Carrol,	3
Portable Mosaic desk, do do	1
Shell frame, Miss Mary Stronach,	1
Best lamp mat, Mrs Mengent,	1
Lot of toilet, fashion, needle books, &c., Mrs Mengent,	2
Lot bead work, pupils of Blind Inst. N. C.,	5
Pair ladies' linen hose, Mrs John Perry,	1
Wreath hair flowers, Miss Mary Page,	1
Chisman's yeast powder, T P Chisman,	dip
One worked Skirt, exhibited by Miss Rebecca Evans, (this skirt has 8000 points, 288,000 stitches,) premium,	2

Owing to the torrents of rain that fell on Friday forenoon, some articles of decided merit may have been removed from the hall by their owners before the discretionary committee had an opportunity of assembling to examine them, and which, not having come under any class on the premium list, were passed by the published committees.

☞ The State Agricultural Society held a series of interesting meetings during the Fair week, but the crowded state of our pages this number, deprives us of the pleasure of publishing them. We call attention to the following resolution adopted, and trust the recommendation and hope expressed will be carried out, and that the friends of Agriculture throughout the State, will aid in extending the circulation of their State organ:

W. R. Cox offered the following resolution, which was adopted, viz:

Resolved, That we recognize The "North Carolina Planter," as an Agricultural Journal worthy of our patronage, and hope that the members of the Society will use their exertions to extend its circulation.

OUR TABLE.

We have received from W. L. Pomeroy, Book-seller, Raleigh, a copy of the first course of Yale Agricultural Lectures.—These Lectures treat of agricultural chemistry, entomology, vegetable physiology, pomology, agriculture proper, and all their kindred subjects, domestic animals, &c.—We recommend this work to all farmers and planters, and shall treat our patrons, in the course of 1861, with copious extracts therefrom. Also, the Farm Account Book which every farmer should have.—We do not see how a farmer can tell what he is doing without keeping some account of his farm operations, according to the forms and directious here laid down. One copy will last a life-time. For sale by W. L. Pomeroy.

For the N. C. Planter

A Few Desultory Remarks Concerning the Peanuts and their Cultivation.

GRAY'S CREEK, N. C., Oct. 18, 1860.

EDITOR N. C. PLANTER—Dear Sir: Your valuable Periodical reaches me regularly, and after each visitation I believe myself benefitted by the information it contains. You have, I see, invited communications upon all subjects of agricultural interest from farming friends and patrons throughout the State. I avail myself of the general invittaion, and herewith forward the first instalment which, perhaps, you may consider of sufficient interest to merit publication.

The cultivation of the pea-nut or ground-pea, as it is commonly called, was commenced in this State about 25 or 30 years ago, by a gentleman of the name of McClanny, who resided, and still resides, I believe, near the seaboard, in the county of New Hanover. For some years the quantity produced was small, but it quickly grew in public favor, and now the number of bushels annually exported cannot fall short of 200,000. It is decidedly the most profitable crops grown in the State in proportion to the number of hands required in tending it, and the amount of labor necessary to its perfect cultivation. But it has been almost entirely restricted to the sea-coast. The impression was that the salt air caused them to mature, which, of late, has been found out by many to be erroneous.

I propose by detailing the result of an experiment of mine, not only to show that this notion is wrong, but also to prove that land precisely opposite to the regular coast pea land can be made to grow peas in great luxuriance, and that this crop can be made on land naturally but poorly adapted to the business, easy and profitable.

So far as my observation goes, the application of lime—a cheap and simple fertilizer—will turn almost any land into pea land.

The kind of land naturally suited to this production has a light snuff-colored soil, with a prevailing growth of oak and hickory, occasionally dotted with spruce pine of large size. The land used by me in the experiment is of a character that would have made a "Sound" planter despair at once, possessing as it did, not one favorable feature. It had a sandy soil with a growth of black jack and long leaf pine, such land as would have produced, in the first year of clearing about eight bushels of corn to the acre, and then would have rapidly degenerated. At the time of my first experience, it produced about 4 or 5 bushels to the acre. In February, 1859, I had four acres finshed up, and just before planting, which should be done the first or second week in April, I had it marked in squares of 21 feet, making 100 squares or checks to the acre, in each of which I put half a peck of slacked rock lime (which I can get delivered at my landing for $1.00 per bbl. I prefer shell lime if I could get it) making 12½ bushels or 2½ bbls. to the acre.

After getting the land "limed," which, for the four acres, subjected me to the trivial expense of $10, I then checked the land 2½ feet each way with a stocked block of wood in the shape of a boot. In planting, I put two peas to the hill, and had them covered like corn. The peas should undergo their first "working" as soon as they attain the size of an ordinary saucer. This is repeated four times before they are dug with a sweep, the hoes following after. The sweep should be, in the first instance, as wide, from point to point, as half the distance between the furrows; but after the first or second time, should be decreased in size, as the vines increase. The grass, by this means, is effectually killed, and the young and tender plant strengthened and protected by the fresh soil stirred and cast up around it. The crop is then laid by. Peas will bear from the time they are the size of your hand until frost, at which time they must be dug; an operation which is expeditely performed by a plan, the invention of the writer's father. This plan consists of a single wing, making an acute angle with the bar about three inches wide and not running flat but obliquely with the ground. The distance between the point of the blade in a perpendicular to the bar, should be half the width of the row, so that the wing would cut under and loosen half the vine as it went down one side of a row, and the other half in coming up on the other side of the same. One plow, with two hands following after, whose business it is to shake the vines free of dirt, and stand them up to dry, will easily finish two acres per day. The peas will be dry enough in ten days to be collected and stacked, which being done, they are ready for picking, which is performed principally by hand; a hand picking from four to five bushels per day. One hand can tend twelve acres and do every thing connected with it, plowing, planting, working, digging, stacking and picking.

My four acres turned me out 200 bushels which I sold in Wilmington for $1.50 per bushel. The same land would not have made over 25 bushels of corn.—Here was an average of $75 to the acre, an average which most cotton farmers, even in Edgecomb, would consider a good crop. This year I have repeated the experiment on a large scale, and, notwithstanding the bad stand occasioned by the unfavorable season, with the most gratifying results. My crop will average 40 bushels to the acre, and it is highly probable that the price will rather augment than diminish. This product bids fair to become a staple one in the State; the demand for it is constantly on the increase; the supply does not keep pace with it, and hence it will become so profitable that many will be induced to go into it. For the information of such I pen the above items.

Yours, &c.

JAS. M. FOY.

Horticulture.

ORCHARD.—The sooner fruit trees are now set out the better, provided the land is not too wet. When that operation is performed, be sure to cut the trees back well at the time of planting; by this management they grow off more strongly in spring. If this is neglected no after management can restore the lost vigour of the tree. It should be remembered that the tree, in taking up, loses a great many roots; the head should be reduced a little more than the root, in proportion, and success is certain.

W. H. HAMILTON.

Quenouille Training of Pears.

As the season for planting has now arrived, we take pleasure in suggesting the above mode of training Pears, as the most picturesque and attractive objects may be formed in a few years by this mode of training. We have seen Pears, trained in this manner, standing singly and in groups on Lawns, which were equal, in fact we may say superior, as objects of attraction, to many of our most expensive and new deciduous trees, and certainly more useful. It has been our good fortune to obtain heavy crops of delicious fruit from trees so trained. As this style of training is not, we think, generally understood by our amateurs, we propose to commence with the tree on the Pear stock just received from the nursery.

In the first place, select strong, vigorous trees; in planting, the richest soil is necessary; after planting, secure the tree from being moved about by winds, or injured by other causes, by placing a stake in a slanting position, heading it to the South-west, as from this quarter do we get the most injurious winds and storms. If the trees are not secured, the almost constant winds of winter and spring will keel them over to the North, and being so frequently moved in this way, they do not root so readily as if this precaution be adopted.—The stake should cross the tree two-thirds the way up, and be well secured, placing a piece of matting or other soft material between the tree and stake; now shorten the leader back, and also the lateral shoots, or as they are generally termed, "side shoots," these last named should be spurred in, that is cut back to two good eyes. The effect of this close pruning will be to produce a quantity of side shoots. Do not allow any shoots to remain on the tree closer to the ground than two and-a-half feet. The best way to prevent this is, when the buds burst forth in spring, rub all those off with the thumb and finger between the distance above named and the ground.

The second year again shorten back the leading shoot and drive in the ground, at three feet distance from the trunk of the tree, some short pieces of oak or cedar posts, in a circle; on the top of these lay an iron hoop, which fasten to the posts by staples; the hoop should be of round iron and two inches above the surface of the ground; to this hoop, at regular intervals, tie the shoots so as to keep them in a pendulous position. In the month of July train the summer growth in the same way. All that will now be necessary for their future welfare, is to spur in all growth not wanted, and by this means produce what are termed "fruit spurs." Disbudding will also be found beneficial, and save a great deal of pruning, and is much more easily performed. As the trees progress in growth tie the branches to the trunks of the trees and to the lower branches which have already assumed the pendulous position.—Very little care and attention will suffice for their wants, and a fine pendulous, conical shaped Pear tree, loaded with fruit, is a fine sight and not to be despised as an ornament to the pleasure grounds. The strongest growing kinds do not make such a graceful appearance as those of more moderate growth.

In the above article, we do not address ourselves to our professional brethren, we write for the benefit of those who do not know, not those who do. We have omitted to mention the necessity of mulching the Pear every fall; a good dressing of decayed leaves for each tree, and a little lime strewed on them, will be found highly beneficial; it should be forked in around the tree before another application is made.

W. H. HAMILTON.

SCROFULA, OR KING'S EVIL,

is a constitutional disease, a corruption of the blood, by which this fluid becomes vitiated, weak, and poor. Being in the circulation, it pervades the whole body, and may burst out in disease on any part of it. No organ is free from its attacks, nor is there one which it may not destroy. The scrofulous taint is variously caused by mercurial disease, low living, disordered or unhealthly food, impure air, filth, and filthy habits, the depressing vices, and, above all, by the venerel infection. Whatever be its origin, it is hereditary in the constitution, descending "from parents to children unto the third and fourth generation; indeed, it seems to be the rod of Him who says, "I will visit the iniquities of the fathers upon their children."

Its effects commence by deposition from the blood of corrupt or ulcerous matter, which, in the lungs, liver, and internal organs, is termed tubercles; in the glands, swellings; and on the surface eruptions or sores. This foul corruption which genders in the blood, depresses the energies of life, so that scrofulous constitutions not only suffer from scrofulous complaints, but they have far less power to withstand the attacks of other diseases; consequently vast numbers perish by disorders which, although not scrofulous in their nature, are still rendered fatal by this taint in the system. Most of the consumption which decimates the human family has its origin directly in ths scrofulous contamination; and many of the destructive diseases of the liver, kidneys, brain, and, indeed, of all the organs, arise from or are aggravated by the same cause,

One quarter of all our people are scrofulous: their persons are invaded by this lurking inflection and their health is undermined by it. To cleanse it from the system we must renovate the blood by an alterative medicine, and invigorate it by healthy food and exercise. Such a medicine we supply in

AYER'S

Compound Extract of Sarsaparilla.

the most effectual remedy which the medical skill of our times can devise for this everywhere prevailing and fatal malady. It is combined from the most active remedials that have been discovered for the expurgation of this foul disorder from the blood, and the rescue of system from its destructive consequences. Hence, it should be employed for the cure of not only Scrofula, but also those other affections which arise from it, such as Eruptive and Skin Diseases, St. Anthony's Fire, Rose, or Erysipelas, Pimples, Pustules, Blotches, Blains and Boils, Tumors, Tetter and Salt Rheum, Scald Head, Ringworm, Rheumatism, Syphilitic and Mercurial Diseases, Dropsy, Dyspepsia, Debility, and, indeed, all Complaints arising from Vitiated or Impure Blood. The popular belief in "impurity of the blood" is founded in truth, for scrofula is a degeneration of the blood. The particular purpose and virtue of this Sarsaparilla is to purify and regenerate this vital fluid, without which sound health is imposible in contaminated constitutions.

AYER'S CATHARTIC PILLS,

For all the purposes of a family physic, are so composed that disease within the range of their action can rarely withstand or evade them, their penetrating properties search, and cleanse, and invigorate every portion of the human organism, correcting its diseased action, and, restoring its
healthy vitalities. As a consequence of these p
perties, the invalid who is bowed down with p
or physical debility is astonished to find his hea
or energy restored by a remedy at once so sim
and inviting.

Not only do they cure the every day complai
of every body, but also many formidable and da
gerous diseases. The agent below named is plea
ed to furnish gratis my American Almanac, co
taining certificates of their cures and directions
their use in the following complaints: Costivene
Hearthurn, Headache arising from disorder
Stomach, Nausea, Indigestion, Pain in and Morb
Inaction of the Bowels, Flatulency, Loss of App
tite, Jaundice, and other kindred complain
arising from a low state of the body or obstructi
of its functions:

AYER'S CHERRY PECTORAL,

FOR THE RAPID CURE OF

Coughs, Colds, Influenza, Hoarseness, Cro
Bronchitis, Incipient Consumption, and for t
relief of Comsumptive Patients in advanced s
ges of the disease.

So wide is the field of its usefulness and so n
merous are the cases, that almost every section
country abounds in persons publicly known, w
have been restored from alarming and even d
perate diseases of the lungs by its use. Wh
once tried, its superiority over every other me
cine of its kind its too apparent to escape obser
tiod, and where its virtues are known, the pub
no longer hesitate what antidote to employ for t
destressing and dangerous affections of the p
monary organs that are incident to our climate
While many inferior remedies thrust upon
community have failed and been discarded, t
has gained friends by every trial, conferred be
fits on the afflicted they can never forget,
produced cures too numerous and too remarka
to be forgotten.

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reports fully establish the manufacturers, st
ments as to its great fertilizing properties. P
per ton Forty Five Dollars, and for sale in qu
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General Agents,
161 Pearl St. New Y

April 2, 1860. 4

H. T. J. D. McDowall

DECEMBER NUMBER, 1860.

NORTH CAROLINA PLANTER.

A MONTHLY

Southern Agricultural Journal:

DEVOTED TO

THE IMPROVEMENT OF SOUTHERN FARMING, HORTICULTURE, FLORICULTURE, AND THE DOMESTIC AND MECHANIC ARTS.

JAMES M. JORDAN, AGRICULTURAL EDITOR.
JOHN W. WOODFIN, OF BUNCOMBE, ASSOCIATE EDITOR.
W. H. HAMILTON, HORTICULTURE AND FLORICULTURE.

A. M. GORMAN, Publisher, Raleigh, N. C.
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TERMS—ONE DOLLAR PER ANNUM, IN ADVANCE.

[illegible]

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Clothing, Time, and Labor Saved.
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THE most simple, economical, and durable article ever offered to the public to alleviate the discomforts of wash-day.

DESCRIPTION.

It consists of a metal cylinder, with ribs on the inside, and an interior cylinder of wood, with ribs. There is a space of from 6 to 8 inches.—One crank turns both cylinders at the same time in opposite directions, rapidly creating a suds, forcing the water through the clothes, and effectually removing the dirt. The action of the water does the work quickly, dispeness entirely with rubbing, and thus saves the wear of clothes.

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April 1860. [J. C. & CO.] 4—ta$6.

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For Land Drainage.

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A CURE FOR THE PILES.

HAVING been afflicted for 26 years with th terrifying disease, and finding no relief, finally discovered a VEGETABLE OINTMEN which I believe is unparelleled in its efficacy, an now offer this remedy to the public, as the mo effectual and speedy cure, ever discovered. Th ngredients of this Ointment are PURELY VEG ETABLE, and one box, if used according to d rections, will effect a cure.

This ointment is sold only by myself and Joh Myatt, and by sending $1, and 9 cents in postag stamps, a box will be sent any where in the Unit States. Address NEAL BROWN,
Raleigh, N.

Raleigh, April 21, 1860. 35...1

CERTIFICATE.

I could add a large number of Certificates, to the efficacy of my Ointment, but the one su joined, from a well known citizen of Raleigh, vo untarily handed to me, will probably suffice :

RALEIGH, April 12, 1860.

MR. NEAL BROWN—*Dear Sir :*—Having bee grievously afflicted with the Piles for a number years, I determined, after failing with many oth so-called remedies, to try your Ointment; and affords me pleasure to say, that by its use, I a entirely relieved from that affliction.

Yours respectfully, SILAS BURNS.

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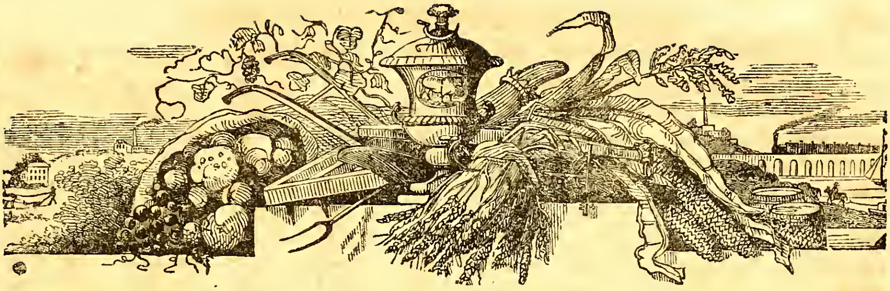

THE NORTH-CAROLINA PLANTER.

Devoted to Agriculture, Horticulture, and the Mechanic Art.

Hœ tibi erunt artes.—VIRGIL. { These are the pursuits to which you should direct your attention.

VOL. 3. RALEIGH, N. C., DECEMBER, 1860. NO. 12.

Selections.

The Swamplands—Their mode of formation and Geological Age.

It is maintained that soils are the debris of rocks which have been forming from the earliest periods of the earth's history. This is no doubt literally true; but the debris has been subjected to certain changes, particularly those of place. It has not lain by the side of the rock from which it was separated in but few instances, but its removal or change of place has been excessive in many instances, as in the western and northern States, while in the South that agency which is recognised there has not been in operation here. In this State, no currents of water have ever swept over the face of the earth, so as to remove the soil to a great distance from the rocks from which it was derived. In the course of time, that which belongs strictly to the present period, however, a partial removal to distant quarters has taken place. This removal was effected mostly by rivers acting locally upon banks of soil, which by little and little were transported to the Atlantic coast, or to inland bays, like the Albemarle and Pamlico of our coast.

Now, the soils during the act of removal, were subjected to the assorting power of water, whereby the coarser parts were separated from the finer and distributed according to the comparative gravity; the finer particles being transported farther than the coarse, and probably in different directions, both laterally and more widely.

The present operations of water illustrate in part the nature of those by which removals formerly took place. We cannot but notice the turbid conditions of the Roanoke, the Neuse and the Cape Fear, during a freshet. It is due to the soil which has been lost from their banks, and which is being transported seawards, but which must subside in part, before the waters reach their destination. In freshets, the low grounds are inundated with this muddy water, and it frequently happens that an inch or more of fine soil is deposited at certain places which are favorably situated, or in places where the waters are unagitated by the rapid currents.—What is usually seen, however, is along the immediate banks of the rivers, and it is not unfrequently the case, that all the old vegetation, however rank, is buried, or concealed beneath the sediment. But in addition to this heavy deposit, there is still a finer one which is carried by the water into lateral marshes, and this water though robbed of a part of its burthen, still retains the finest, which slowly settles among the moss, reeds, grasses &c., which belong to this peculiar formation. These waters are slowly drawn off, and perhaps even remain for weeks, and are only disposed of by mid-summer, by evaporation, and during the time vegetation is active while it is receiving the fine sediments of the overflowing rivers. In conditions like the foregoing we probably find the best swamp soils formed, inasmuch as there is added to the growing mosses fine sediments which become the basis of the best of soils, and which are intimately intermingled with an abundance of fertilizing matter in the condition of peat.

Such is the process by which the swamp lands are made, while the poorer being situated where only the white assorted sand has access. When the sand and vegetation has reached a certain hight, or has attained the level of ordinary freshets, vegetation still goes on, and moss, grass, and certain herbaceous plants and trees, still grow, until the surface upon which they stand is higher than the margins. The whole mass of vegetation which grew in former years is like a sponge, and it is at all times nearly aturated with water. In this condition it receives no further addition of soil; it is a mere growth of water living vegetables which maintain their place by their constitutional adaptations. This vegetation is divisible into two parts, the dead and living; the former beneath, the latter above. This *status quo* is maintained solely by the low teemperature of the swamp. All the vegetation below is as it were, water logged, and in process of time it simply blackens, as it is a water charring; and when it has become peat it undergoes no farther change. This is the exact condition of many swamps; above they consist of a mass of vegetation of the poorest plants, the mosses and coarse grasses; and for trees, some pines of a small size, and many bays or magnolias. Let such a swamp be drained and it subsides from a one to two feet; a change which is confined to the upper part. In early days, or when first forming, sand was received from a distance, or it may have been laid down upon an old sandy sea bottom. But it has generally happened that the lower parts of the vegetable mass is mixed with sand, showing that though the swamp was based upon a sea bottom; yet, being basin shaped, it continued for a time to receive materials from a distance. The age of these deposits is no doubt recent. They repose upon the eolian sands, and generally, so far as their bottoms have been exposed for examination, they belong to most recent coast deposits, and yet, it is probably true, that they extend far back beyond the settlement of the coast. Still, they are properly modern formations, and are entirely connected with the present state and arrangements of the present line of coasts, and the river systems coming in from the interior.

It is probably true, that as to agricultural value, it will prove that those which are the highest or have become higher than tide water by growth of vegetation, they are of less value, while those which are so situated that they receive the overflowings of rivers until a late period, and hence are last formed, are the most valuable. Hyde county, for example, is only about 4 or 5 feet above storm tides. The Dover swamp in Craven county, we believe, is nearly 60 feet; the first is excellent land, and the latter worthless,—or comparatively so. In the same field, however, with these poor swamps we may often find fertile islands capable of bearing heavy crops of corn. The means by which such islands may be recognised will be stated farther on.

* * *

Geographical position of the swamp lands, and their extent in North-Carolina.—Defective information in the public archieves of the State. The Swamp lands, etc.

The lands under consideration are confined to the eastern counties. They scarcely touch the long, narrow sounds which skirt the Atlantic. Large bodies extend from fifty to one hundred miles from the ocean, and occupy wide belts, not far from, and parallel with, the principal rivers.—Their shape is however, irregular, and it will be seen by the inspection of any correct map, that they must occupy ground considerably higher than the beds of the river which they skirt. They are reservoirs of water, and numerous streams issue from them on all sides, which find their way to the river channels by exceedingly crooked routes or courses. Dismal, lying partly in Virginia and partly in North-

Carolina, and which occupies large tracts in Currituck and Pasquotank counties.—Pasquotank river rises in this swamp, its head being really in Lake Drummond, in Virginia. Towns and numerous hamlets, however, are planted in the great Dismal Swamp. It is traversed by roads, and few in passing through this section of country would suspect they were in this swamp, famous the world over for its ominous name.

The largest territory of swamp lies in Washington, Tyrrell, Beaufort and Hyde counties. Its whole length is rather more than seventy-five miles from the east to west, and at least forty-five in the widest part from north to south. It lies between Albemarle Sound, the lower Roanoke River, and Pamlico Sound, Pamlico and Tar Rivers. The most eastern parts of this great tract, however, should be regarded as *marsh land*, and subject to overflow during storm tides. Like all swamp lands, the middle is higher by a few feet than the margins. It terminates westward, near Washington, Beaufort county. This great body differs from other swamps by a more uniform continuity, and a more perfect level, and with fewer knowles, called *islands*. Hyde county, for example, is level as a house floor, and as even as a well contracted garden. It is but a few feet above tide; too few to give depth for wells, and hence, water for cooking is supplied mainly from cisterns resting upon the ground. This swamp has four shallow lakes of considerable size. The largest is Matamuskeet, which is twenty miles long. Lying a few feet lower than the swamp are tracts of stiff clay soil, probably as good for wheat as any in the State, but these diverse kinds are never intermingled; the clay is a kind of outlier or border. The lands of this great swamp have become famous for the large crops of corn they produce. They are called the Hyde county or Matamuskeet lands.

Again, included between the forks of Pamlico and Neuse Rivers is another swamp thirty miles long, but in area, it is less than an eighth of the Matamuskeet Swamp and Pungo Swamp.

South of the Neuse, and lying in Carteret and Jones counties, there is another immense tract of swamp land, 80,000 acres of which is known as the open prairie of Carteret. In nearly a continued belt this swamp is 75 miles long from east to west, but its width is less than the Matamuskeet swamp. It is not by any means perfectly continuous. It admits the passage of roads, but it lies nearly upon one plane, and the slight inequalities scarcely serve to divide it into seperate sections.

Dover swamp is an isolated tract some fifteen miles in length, and is crossed by the Alantic Railroad.

Onslow and Jones counties contain a part of the great Carteret tract. This tract, at its western extremity, gives origin to the White Oak creek.

Holly Shelter Swamp lies parallel with east Cape Fear river. It begins in Onslow county, but the greattest part lies in New Hanover county, east of the Wilmington and Weldon Railroad.

In Brunswick county lies the Green Swamp. It is rather lower than those we have mentioned, but it is peculiar in having nemerous islands; that is, rounded hillocks, but slightly elevated above the general surface of the swamp. These are inhabited by squatters, who live by basket-making, and by general plunder of those materials which can be turned into hominy, hoe-cake and a little bacon. On the border of this swamp there has been formed a beautiful lake with clear water, and known as Waccamaw lake, and from which flows the Waccamaw river, a boatable stream, though it is liable to be blocked up by trees and dead timber. Livingston's creek rises in this swamp, and is boatable from the Cape Fear to the crossing of the Manchester Railroad, and up which the tide flows twelve miles, rising something like two feet at its mouth. Columbus county contains large bodies of swamp land, but not so continuous as the Green swamp of Brunswick.

The whole number of acres of swamp lands in the State is at least two millions, of which the State owns *one million five hundred thousand*. This, however, does not include the marsh lands bordering the sounds There are also smaller tracts owned by individuals, of considerable value, in all the counties we have named. There is, however, a deficiency of statistics and records of surveys, and although the swamp lands are vastly important, the archives of the State furnish really no information of value. Private individuals who are personally interested in large tracts of those lands, have furnished all the reliable information we possess relative to them.

In contrast with the swamp lands, we may briefly notice the Savannah lands.—These are beautiful, open and level spaces, covered now with broom grass. We have not been told what they produced in early times. The largest in the State lie on both sides of the Wilmington and Weldon Railroad, in the county of New Hanover, and not far above Wilmington. A traveler passing over the road in the day time, will admire their beautiful surfaces, though they are not covered with brilliant flowers and the more valuable crops of cereals.

E. EMMONS,
State Geologist.

From the American Cotton Planter.

Compost Manure.

The gathering of the crop will soon be over, when much may be done, and valuably done too, in preparing for and making compost manure. Remember there is nothing upon the plantation—if it will decay—but that will add to the fertility of the soil. All the litter and leaves thot fall in the yard from your shade trees, the ashes from the wood you burn, the bones from the kitchen, the blood and other offal from your pork hogs, and beeves, the chips from the wood pile, and indeed, all the vegetable litter about the place should be thrown into the compost heap, and the soapsuds every week, if not otherwise used upon your fruit trees, should be poured over the compost heap. The litter from weeds, briars and other brushwood, from the jams of your fences, may and should also be used in the same way. And litter from the forests, that prolific source of vegetable matter, *ad libitum,*at will and in any quantity. Every planter should avail himself of every means in his power, or at least within his reasonable means, for fertilizing his generous and usually over-tasked soil. No soil, however fertile by nature, or however deep, can long withstand our depleting system of cropping. The effect of our constant one-idea system is imperceptible in its approach to planters generally—in this way, the crop is one year greatly injured by insects, first the *aphis,* then the worm in some of its forms, then the rust, and so on from one blight to another till the planter is forced to change the fields to something else—grain or some weed crop! All the time, however the true source of the difficulty is unsuspected—*the exhaustion of the soluble fertility!* in the soil for the *cotton and corn* and *corn and cotton!* All this is the effect of exhausting soil—washing rains on the fields constantly cropped to corn and cotton. We again insist, then, that every spare moment after gathering the crop should be occupied in collecting together everything that will contribute to the enlargement and value of your manure bank. The fertility of your manure bank effects the increased per centum of your crops just in the proportion to the *level* and *depth* of your cultivated soil; and however strange and novel it may appear to some or many planters, manuring, deep and level culture, pay better on new land, we mean newly cleared land in a new country, if you please, than on old fields and exhausted soils Wherever you have stuble land and it protected by guard drains and level rows, we advise by all means, if you can spare the time from cotton-picking, put on it your good Brinley plows, with two mules to each and a good plowman.

Covered Drains, vs. Open Ditches.

Judge HENRY F. FRENCH, of New Hampshire, told us, on being first introduced to the Convention, that he was not an orator; but his audiences of yesterday and to-day are, if I may judge from their expressions at the close of the two discourses, convinced that he is possessed of the eloquence of facts, more useful to us than the other glittering qualification.—He commenced this morning by saying a good thing boldly, viz: that open ditches obstruct good husbandry, a fact which the opponents to covered drains would do well to remember. Open ditches occupy much land needlessly; they cause constant turning at headlands; their influence on the area of soil is not uniform, as the parts nearest them are dried while the rest is left as wet as ever; in heavy rains not only is much soil washed into them, but, along with it, manure that at labor and expense has been applied; their banks washing away, the bottoms soon get filled up, and require frequent cleaning out; and their sides and boundary strips afford a refuge to weeds, and a home to rats, mice, and other vermin. Sometimes, a "headers" to cut off the inflow of water to a field, they may be of use; and again, on very level land, a great canal-like ditch may be employed, in lieu of a natural water-course, to receive the drainage of a farm; but these are the exceptions to a general rule. The various kinds of drains were in turn described, the lecturer observing that there might be circumstances where tiles could not be had, and thence these several substitutes could be tolerated as makeshifts. In brush drains, the durability of the material depends not so much upon its keeping nature as on the physical and other character of the soil. Thus, he had known an instance of white birch, which one would think would decay in a year, having remained in a brush drain for six years almost as fresh as when cut.

The reason for its preservation was, that it had been sub-merged in water continually Into brush-drains soil very easily falls, and soon here and there the superincumbent mass caves in, sometimes to such an extent that a wagon-load of dirt is required to fill the sinks; mice and moles work into them, too, and at best they are poor concerns. The mole-plowing now practised on Western praries is, for a new country where land is so cheap, and where a sticky clay sub-soil underlies whole districts, a tolerably good plan. It has been known and practised in England since almost the time of Methuseleh. Major Dickinson of Steuben county, New York, has gotton up one of these ancient mole-plows, and dubbed it "Shanghae." Drains are made in some "wooden countries," by aying two stout poles at bottom and one on them. In Scotland they have in some benighted section a "shoulder" drain, which consists in digging down, say 18 inches wide, to a certain depth, and then cutting the rest of the way down only one-hird as wide; thus making a narrow box drain in the ground, on the shoulders of which inverted stiff sods are laid as a cov-ering, and the soil filled up to the surface upon them. Stone drains he esteems next in utility to tiles, but there is great choice in their construction. The best way of all is to set up one course of slab stones per-endicularly against the right bank, and hen leaning other stones against them, making a drain shaped like a single-pitch shed-roof. If the stones are delivered to a farmer at the edge of his ditches, they are still dearer for his use than tile drains, even when he has to pay $10 or $12 per 1,000 for tile. The mere cost of excavating and hauling bowlders for drains is very large, and after all, their function is unsatisfactory. The reason why all these kinds of drains have been stoutly upheld by their users is that any drain, however poor, is far better than none; crops are increased, tillage facilitated, and the pleased experimenter, perhaps not willing to look for a better method than the one he has employed, thinks there is nothing in the world so good. Tile drains, then, we are told, are the best. Of the several kinds of tile, the pipe kind is to be preferred.—No tiles are burned, without warping and shrinking; now the ends should be well fitted to gether, and no kind but pipe-tile can be turned over to make good fits, one with another, and still be right side up.—This is the objection to the sole-tile, made at Albany and elsewhere, and largely employed. They must be set sole down, and if the lot purchased be much warped, a straight water-course cannot be insured, and the drain is correspondingly unreliable. The objection to "horseshoe" tile is, that in a soft bottom its narrow sides sink so as to render the drain sometimes useless; besides which, they, having a heavy weight to bear upon an unarched bottom, are liable to split lengthwise through the back; and, further, the stream of water spread over a flat surface cannot run so rapidly, and is less able to sweep away obstructions, as when the same volume is condensed into tubular form, narrowed at the bottom.—Thinking that water could not get into the close-fitted and close-textured tiles, many in Scotland, in former times, put a foot or so of small stones over their tile, and soil upon that—a foolish and expensive process this, for there is no trouble to get water into your insignificant-looking drains—it takes care of that itself; the trouble has been to account for its wonderful inpouring through such small orifices. Parkes, the great English drainer, states, after experiments, that only 1-500 of the water gets through the pores of the tile; the balance is admitted through the joints.—English farmers make their ditches a foot wide at top, four inches at the bottom, and with an appropriate tool, scoop out a little round though in which to lay their pipes. The soil is then packed upon them, without further trouble or anxiety as to the result. Drains well laid last more than fifty years. A half century is the time counted upon by the English land drainage companies, at the end of which the whole amount of their loans to the farmer is to be paid in. Water enters tile-drains at bottom, not at top; for the same reason that if you pour water into a cask of sand, with holes made in the sides at several heights, the lowest hole will discharge first, and the top one last. The capacity of pipe-tile is in proportion to the squares of their diameter; Thus, if an inch tile will carry one inch of water, a two-inch will carry four inches, a three-inch nine, and so on. Inch tiles, therefore, although perhaps large enough to hold all the water that we would discharge from our fields, are practically not large enough, for they become filled, say half way down the slope, and of course all the ground they pass through after that might as well have no tiles beneath it. A two-inch bore is the smallest Judge French would recommend for general use, and although previously a friend to smaller sizes, I feel convinced of the justness of his arguments, and shall hereafter recommend and use accordingly.—Laterals should be jointed into the mains, *pointing down stream*, and enter the mains near the top; by this plan a good fall and unimpeded discharge are insured. In respect to the minimum of fall consistent with good function of tile drains, the lecturer stated that one inch fall in each rod of length was ample; three inches to the 100 feet was a fair proportion, but then the tiles should be larger; and so on to the end of the calculation.

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From the Southern Homestead.

Plaster—Manures.

Messrs Editors:—In a number of your paper dated some weeks back, you are asked to explain the rationale of the action of plaster on clover—and in your issue of June 23d, an explanation is given, which is far from being satisfactory, in my humble opinion.

Are you sure that plaster has any paricular action on clover over other field crops, or any other vegetable matter? Is the principle of manures properly understood? I think not, or else there would not be so much controversy about the application of manures, and their respective qualities. In the article alluded to, you say "Sulphate of lime (plaster,) has the power to receive and retain many gases until they can be abstracted by plant life." Now, if the gases are necessary to support vegetable life and mature it, you have made a most excellent suggestion; but in the very same paragraph you also say, "it (the plaster) also arrests certain classes of decomposition." Now if gases are supplied by decomposition, and are necessary to support vegetable life, why would you wish to arrest decomposition, and lessen the supply of gases, which can be abstracted by plant life? Upon what principle is the plant grown and matured? The common theory is that all vegetable matter, the trunk or stalk, the bark, the leaves, and the grain or fruit is composed of certain solid materials, and these materials must be contained in the soil in order to supply the demand of the plant, *that the sulphates, nitrates, carbonates, and phosphates,* in their common formation must be present, in proper quantities, and are held in solution by the rains, then taken up by the roots of the plant, and assimulated into the various parts of the plant.

In this theory we forget that all solid matter is composed of gases, and the difference in the kind of solid matter is owing entirely to the proportions of those combined gases, viz: carbon acid gas, oxygen, nitrogen, and hydrogen. Sugar and starch, after being analyzed, are found to be composed of precisely the very same elementary principles. The difference is in their proportions. So it is with corrosive sublimate and calomel; the one a mild, the other a violent poison. No two substances differ more widely in appearance than charcoal and the diamond; yet they are composed of the same elementary principles, so far as analyzation can detect them. If the theory be correct, then, there must be an abundance of saccharine matter in the soil to supply the demand of the sugar cane, the sugar beet, the grape, and the sugar Maple, or how can this varied growth be supplied by such quantities of saccharine matter?

Again, the soil must be well supplied with oil, or where does the *cotton-seed, flax-*

en-seed, *the palmachristi*, and the *olive*, procure their oil from?

The oxen fattens on grass, and makes an abundance of oil; yet there is no oil in grass—the blood of animals require large quantities of iron, and yet we eat no iron in our food; nor do the lower class of animals, so far as we know—where do we get the iron from, so necessary for the requirements of the system, if not in our food? All these questions I will endeavor to answer in their proper places.

You may analyze the soil, with the very best test that can be procured, and you will find neither sugar, starch, nor oil.—To show the fallacy of this theory more satisfactory, we will refer to the bearing condition of the draft pear grafted on the quince stalk—the roots of which had taken up all the necessary matter held in solution (as the juice of the tree,) to produce a quince, yet, instead of a quince, beholds a pear comes forth! How would you account for this freak of nature upon the old theory? Then if the old theory is as defective as it seems to be, you must account for the effects of manure, and the growth, and maturity of plants in some other way more rational.

The first question then is, how do manures act? I am inclined to the opinion that all manures act alike, either directly or indirectly, and that is, by their decomposition and furnishing the gases for the food of the plant. Manures may decompose rapidly as is the case with *plaster guano* and *stable-manure*, and here they act directly, by furnishing the gases in a most concentrated form for the quick and full maturity of the plant—or they may act indirectly, as is often the case with the carbonate of lime, which is slow to decompose of itself, but will unite with acids sometimes contained in the soil, and form a salt which will more readily decompose and furnish the necessary gases. Now, if this be the correct principle, the more readily a substance decomposes, whether *animal*, *vegetable*, or *mineral*, that substance must furnish the best manure.

Suppose I were to ask the question, what vegetable matter is it that decomposes soooest of the field crops. The reader, of any experience, would answer at once, the *clover*, and the *pea-vine*. Now go to the woods, and ask yourself what leaf is it that decomposes soonest? Your answer would be, the walnut leaf; therefore the ground around a walnut tree ought to be richer on the same quality of soil than that around other trees. What is next? The hickory, the mulberry, and elm. The oak and the pine are the last to decompose, therefore they make the least manure. The reader will draw his own conclusions at once, from his own experience, that in woodland of the same natural quality of soil, the land is richer or poorer, just in proportion to the readiness of the leaves of the differet trees to decompose. Land, however, may be naturally rich from other causes. It may be rich from its mineral contents; for where the mineral decomposes readily, it has the same effect as vegetable decomposition in its action on plants.

Suppose you cut a ditch two feet deep, or dig a well, you will discover that as soon after the sub-soil which has been thrown to the surface, has had time to decompose, large rich weeds will grow most luxuriantly, where they would not have grown before. Then we should come to the conclusion that soil may be made as deep as we will plow the ground on a clay sub soil.—If the soil on the hill-side is washed away by heavy rains, and the clay left bare, it becomes sterile, and the place where it has been washed produce better than before. Why is this? The question is easily answered. The salts in the soil from the washed place has been filtrated by the rains, and washed out from the surface, and deposited in some low place. Now if you turn up that galled place two feet deep, you turn up new salts to the surface, which are exposed to heat and moisture, and in due time will decompose, and furnish again the food for the nutriment of plants, and your soil is greatly improved. Carbon, oxygen, nitrogen, and hydrogen, as I have said before, are the four elementary principles of all solid matter, and every part of the plant is a sort of chemical apparatus, which brings these gasses together, which have been taken from the soil through the roots of the plant, through its circulating fluids, or sap. Each particular part of the plant brings these gases together in their proper proportions to make its own peculiar quality of solid matter. It is these gases that make the fibre of the tree or plant, the bark, the leaves, and the fruit, as well as oil, sugar, and even their odor. These gases can even form solid matter high up in the atmosphere in the form of meteoric rock, or meteoric iron. The gasses are brought up together through the agencies of electricity in their due proportions, and the result in rock or iron, formed as the case may be. Now, what I mean to say, is this: that although a plant may contain sugar, starch, or gluten, it is not essentially necessary that these substances shall be contained in the soil to supply the plant with these articles. It can be supplied with anything else from which, when decomposed, will furnish carbon, oxygen, nitrogen, and hydrogen, in sufficient proporportions to satisfy the demands of the plant, itself, in its manufactory (if I may use such an expression in this connection,) of sugar, starch, oil or gluten. If sugar was decomposed into its original elements, it would no longer be sugar, but if the elements could be made to unite again, in their full proportions, it would again be sugar. Or if the very same elements in the same proportion, were taken from the decomposition of other matter, and could be made to unite by art, as they are by nature, the result would be sugar. So it would be with either of the other articles mentioned above. If one article, however, is cultivated two or three years in the same field it will exhaust some one or more of these elementary materials, and the crop would begin to fail. But by changing it to some other plant that does not require that lost principle, a good crop can be raised, and the soil will soon require that lost principle, and will produce the first crop again as abundantly as before.

Rains have three separate and kistinct actions on plants. One is, to facilitate the decomposition of vegetable and mineral matters contained in the soil. Another is to furnish the oxygen and hydrogen gasses, of which water is composed, and the third is to soften the soil, that the roots of the plant may penetrate it more readily, and abstract those gases which have been supplied by decomposition. Then I conclude, on the subject of plaster, that it acts on all vegetable matter alike by its varied application to suit the particular growth of the different plants, or so far as it can furnish those gases in their proportions required by the wants of a particular plant, and the quickness of its action depends upon its quick decomposition, and its readiness to decompose depends upon its thorough pulverization—viz: the finer it is ground, the sooner it decomposes, and furnishes the gases in their most concentrated form, for the growth and maturity of the plant; and this accounts for the great difference of opinion in relation to the proper application of manures.

Some authors contend that surface manuring is best, while others contend, as strongly, that it should be turned under. Manures applied to the surface will decompose much more readily than when turned under; because they are more exposed to the elements which cause decomposition—heat and moisture. Therefore, manures applied to the surface, will show their effect sooner, and are lost sooner. Manures turned under do not show their effect so soon, but last longer, because they do not decompose so readily. R. H. HODSDEN.

Sevier Co., Tenn., Aug., 1860.

Underdrainage—Why it Makes Soil Moistens in Dry Weather.

Every one can understand why the drainage of land should leave it dryer after rains. It is because the excess of water is carried off through the tiles. Farmers experienced in the cultivation of drained lands, who have drained extensively and tried the effects, agree, *nem. con.*, that it makes the soil moister in times of drouth. But why this is so, they cannot exactly see. If we can make the following understood, they will see, that by the laws of nature an increase of moisture in dry times, is just as much a natural consequence of drainage, as a diminution of water in wet times.

All soils have, in different degrees, a retentive power over water; that is, they hold a certain portion of water, after all has drained out that will. Sands hold the least. A moderately compact loam holds twice as much as sand; a stiff clay three times as much, and some peaty soils four times as much. When you supply a soil with water beyond its capacity to hold it, the excess flows off, if unobstructed, and leaves the soil with only so much water as it has a capacity for—in other words, leaves it saturated, and no more. Thus, if you pack your pails, each with a hole in its bottom, one with a common loam, one with clay, and one with peat, each of these soils having been thoroughly dried, and then by slow degrees pour a pailfull of water on each, you will find that nearly all the water will pass through the sand; less through the loam, still less through the clay, and very little or none through the peat.

In a heavy rain any soil is more than saturated—has in it for a time more water than it can hold—but the water soon drains off, in case no obstruction is presented, and leaves the soil with its appropriate quantity of water; that is, so much as it can hold and yet be in a sound condition, such as to feel solid under your feet, and not to poach when the cattle walk over it.

But while the soil remains full of water, as while a heavy rain is falling, the air is pressed out, and then, as fast as the excess of water settles away into the earth, the air follows, and occupies its place. The soil examined in this state would appear to be made up of particles, each particle moistened with water, and air circulating through the intervening spaces. The difference between this and a soil that is water soaked, is that the spaces in one case are completely filled with air, in the other with water.

It is a well established fact, that air always contains more or less watery vapor, varying from half to one and a half per cent, and averaging about one per cent.—The more air is heated, the more water it can hold in solution; and if it is suddenly cooled, it gives up a portion of its water to any object it comes in contact with. For illustration, you set a tumbler of cold water upon your dinner table, on a dry summer's day. You may wipe the outside as dry as you please, but soon it will be wet. The children say the tumbler sweats. But the truth is, the heated air coming in at the door and windows, as it passes by the tumbler is cooled; its capacity for water is lessened; and it deposits a portion of its water on the cool surface of the tumbler.

Just so, when a soil is open and porous, with a free circulation of air among its particles, the air coming into the soil in a heated state, is cooled by contact with the particles, and deposits on their surface a portion of its watery vapor, precisely as on the tumbler, in the other case. It will not do to say that these particles of water thus deposited, are too small to amount to anything. On the millions of particles in a single spadeful of soil, they amount to a great deal, equal, throughout the body of the soil, in the course of a day, to a pretty good shower; and this is the reason why farmers who underdrain, and plow deep, and stir the soil often, seldom or never suffer from drouth.—*Ind. Farmer.*

The Mechanical Condition of Soils Differ—Circulation of Water in the Soil with its Saline Matter—Capability of Bearing Drouth—How to Escape from the Effects of Drouth—Temperature of Soils—Influenced by Color—Weight of Soils, Etc.

The mechanical or physical conditions of soils differ according to their composition, and these physical differences must not be disregarded. It is well known that a clay soil contains under ordinary circumstances, more water than a mixture of clay sand, and much more than sand alone.—This fact may or may not become a serious injury to growing crops. It will depend upon the season. If it is very wet, serious injury may be expected, or if it is very dry the crop will suffer, but not in the same way. All surfaces, whether composed of clay or sand, become dry by the evaporation of water, and the evaporation not only effects the surface, but extends to a great depth; water seems to rise up to the surface beneath to supply the waste. In confirmation of this view it is not uncommon to find a saline matter upon the surface in dry weather, which has been in solution in the water brought to the surface by this process. In many places in Wake county, N. C., the naked soil in ditches is covered with an incrustation of sulphates or iron and alumine, an astringent salt injurious to vegetation. This incrustation is formed only when there is a drouth; it is a gradual process. In countries where a whole season is dry, the soil becomes whitened with salts. Rains dissolve them and they sink again into the soil, though a portion will be carried away by water An effect of a drouth upon a clay soil is to cause a shrinkage of the mass.—It will then become still more difficult for roots to penetrate it, and hence, when drouth occurs early in the season, the crop is starved for want of nutriment, the roots cannot spread through an impervious mass. But sand simply dries without diminishing its bulk, but this process takes place with greater rapidity than upon clay soils, the latter being close and more retentive of moisture than the former.

The rise of water to the surface from beneath, is familiarly illustrated by the putting of water into the saucer of a flower pot; its rise to the surface is well known. Flower pots are watered with common rain water or charged with fertilizing matter, which is conveyed to the roots. In long continued drouths when the water rises from the depth of 4 or 5 feet, instead of carrying up matter compatible with the nature of the plant, the astringent salts take their place, injurious effects to vegetation take place in addition to those which arise directly from the want of rain. These injurious salts are easily corrected by the use of lime or marl. When they reach the neighborhood of the roots, if lime is present, it will decompose the salts and form gypsom. Fruit trees which send their roots deeply into the soil are often injured by the presence of these salts.—From the foregoing facts it is evident that the subsoil should be examined for poisonous salts, and when the ditches or deep layers are exposed in cuttings for roads, and should become partially incrusted with astringent salts, it will be important to institute means for correcting this condition of the deep subsoil.

The foregoing remarks apply to those varieties which are purely *clay* or sand.—Composition may modify results materially; if for example a soil whose composition retains a preponderance of clay and yet has a due admixture of organic matter and lime, its ability to stand a drouth is greatly increased—for organic matter and lime not only retain moisture strongly, but they affect the texture favorably, and counteract the tendency to excess in shrinkage.

As drouths in North-Carolina are much more injurious than excess of rain, it becomes a question of importance to know how to guard against their effects. The first point to be attended to, is to drain deeply. This will affect gradually the texture of the clay; it will become more porous, while its natural affinity for water will not be diminished; that is it will be sufficiently retentive while the excess of water will be drained off. Clay may be regarded as requiring a specific amount of water; but at the same time its capacity for receiving and holding a greater quantity than this, is proved by experience. Another change may be effected by the free use of organic matter, which, when mixed with the soil, makes it porous. In the cultivation of not only clay soils, but sandy ones, crops should be planted as early as possible, that the surface may be protected by the shade of the growing crop. To be able to plant early, in clay soils especially, the water must be disposed of by drainage. Two weeks may be saved in many cases by drainage; that is, the land will admit of the plough two weeks earlier in drained, than in undrained lands. Give a crop of corn two weeks more of growth than another piece equally well prepared, and the former will live through an ordinary drouth without injury, while the latter will not become half a crop.

Absorption of moisture from the air takes place principally during the night, and an absorbative power is less in sandy than clayey soils. This respite from heat, which causes so much evaporation during the day, is of the highest importance.—Even when dew does not fall, soils take a small quantity of water from the atmosphere. A stiff clay, it is said, sometimes absorbs one-thirtieth part of its own weight. Dry peat will also absorb nearly as much, but its power depends upon its condition; if very fine, it absorbs more than clay; if coarse, less. The best condition of a soil is without doubt a mixture of clay and organic matter, where it is necessary to guard against droughts.

The surface temperature of soils differ according to their composition. Water in all soils favors a low temperature, because the evaporation carries off heat in the invisible vapor which rises from the surface. So long as an active evaporation goes on the surface continues cold, hence in swamps and bogs where the supply is inexhaustible, very slight changes only occur during the summer. When the surface becomes dry it begins to rise, and if the air is only 60° or 70° in the shade, the soil will absorb and accumulate heat and may rise to 90° or 100°.

Color has much effect upon temperature. The darker the color, all things being equal, the greater is the absorbative power. The correctness of the common opinion with respect to the natural coldness of light colored clay soils is correct.

It is stated by good authority that the amount of evaporation from an acre of fresh ploughed land is equal to nine hundred and fifty pounds per hour for the first and second days after plowing. The rapid evaporation diminishes every day. Evaporation begins again by hoeing, but the moist surface thus exposed has other functions besides the evaporative one. Moist surfaces are much better absorbents of ammonia from the atmosphere than dry ones, and one of the most important effects of stirring the soil often, arises from its increase in absorbative power. Water in the soil is disposed of by forest leaves or by the vegetable kingdom. A single tree 8½ inches in diameter and 30 feet high expired from leaves in 12 hours 333,072 grains of water.

An acre of woodland evaporates 31,000 pounds in 12 hours. During the summer, embracing 92 days, the whole amount of evaporation will amount to 2,852,000 pounds. Forests and vegetation generally largely aid the disposal of excessive water in the spring. Water of course accumulates in the soil during winter. Our wells receive their supply and springs have their sources of water replenished.

It is true, however, that the removal of forests presents a seeming anomaly, for where large tracts of country are shorn of their trees and forests, the head-waters of our rivers fail or diminish. Evaporation is greatest from a shorn surface, and a country is on the road to ruin when its woodlands are mostly destroyed or consigned to the axe.

But woodlands require a change. Rotation is as necessary to the forest as to the successive crops of the farmer. We see this in the death of pines over large areas of this State. The idea that death was caused wholly by insects is fallacious. In it we see, in part at least, a natural effort to change the kind of vegetation. Oaks and hickory replace the pines. For hundreds of years pines had been the staple products of large tracts in this State. Is it therefore remarkable that a light soil containing the true pabulum of life for the pine, should have been nearly exhausted and the pine should have thereby become weakened and more liable to disease than formerly?

The absolute weight of different soils is also variable. A cubic foot of clay, with its moisture, weighs about 115 pounds.—The same quantity of damp sand 141; while peat, with its water, weighs only about 81 pounds. The weight of soils affects the labor of tillage. More force is required to lift a sandy soil than a clay But the texture or compactness of an undrained clay soil more than makes up for its less weight.

In every point of view the farmer is encouraged to ameliorate the mechanical condition of his plantation. The first point requiring attention is its water or drainage, for when a soil is water soaked, good crops are only to be made in the most favorable season.

A subsoil of clay beneath sand is ameliorated by draining, though the top may appear to be sufficiently dry; for the clay may be regarded as a reservoir of water, just as the filled saucer beneath the flower pot. We may recognise in these facts two currents which may be found in soils; a downward current, which disposes of surface water, and an upward current, when the surface water has become exhausted.—This arrangement is a wise one, for if there were no upward currents, plants would perish, both for want of nutriment and water during drouths. This result would be far more likely to happen in the case of the cereals and cultivated crops, than in the plants which grow naturally in the soil.

E. EMMONS, State Geologist.

From the Southern Planter.

Tobacco Fertilizers.

HOLKHAM, April 19, 1860.—You were so polite as to solicit me to say something occasionally through your paper on the subject of agriculture, and I embrace this opportunity of urging upon the growers of tobacco the propriety, I might say the absolute necessity, of selecting good soil only, and cultivating at least one-third less; concentrating their manures, home-made and bought, on a smaller surface, and making larger, heavier and richer tobacco, which invariably commands a remunerative price, adopt the only sure mode of raising this description of tobacco.

At this time the price of ordinary tobacco is so low, that no one can afford to grow it, while large, rich, heavy tobacco pays well. Some planters will doubtless say their soil is too poor to produce tobacco of this description; not so, however, except in but few instances. The writer of this has generally as good tobacco as his neighbors, whose lands are held from fiften to twenty-five dollars per acre higher—overcoming the great inferiority of soil which this fact will indicate, by a greater concentration of manures and giving to its cultivation and general management, that attention, which could not be given to a large and full crop.

It may be said that if every one adopts this plan, the best tobacco will likewise come down to a ruinously low price. I grant it; but this can never be the case, as the farmers (generally with but few exceptions) seem to prefer groping in Egyptian darkness, and rarely abandon the error of their ways. Having received a great number of inquiries by letter and otherwise, as to the fertilizers I use on my soil for tobacco, to save much trouble I will here state, that I shall apply one half-barrel to the acre, of plaster, containing 10 per cent. potash, which I procure of Samuel Sands, Esq., of Baltimore, editor of the Rural Register: and in addition to this, from one hundred and fifty or two hundred and fifty pounds of a preparation made by R. H. Stabler, Esq., for Messrs. Fowle & Co., Alexandria, containing two-thirds Peruvian Guano, and one-third Soluble Phosphate, made by treating Sombrero Guano, with sulphuric acid. I used this last, on my wheat last Fall, as did several of my neighbors, and from present appearances, I consider it an exceedingly valuable fertilizer. All of the simple phosphates, unless treated with sulphuric acid, are too insoluble, I fear, to produce any perceptible effect on the immediate crop, and especially those grown entirely during the Summer and Fall.

Experiments have been repeatedly made in England, (where there is so much more humidity than here,) establishing the fact that one bushel of soluble phosphate will produce as great an effect on the crop as five in the crude insoluble state.

Many short-sighted farmers will doubtless be deterred from using the above fertilizer to the extent which I have recommended; but who should hesitate one moment, when an expenditure of from eight to ten dollars per acre, will ensure a crop, in ordinary seasons, worth from $125 to $150 per acre, and afterwards a good crop of wheat and stand of grass.

I shall experiment, also, with some Elide or California Guano, applying at the same time the preparation of Plaster and Potash, which I consider highly important, whatever else may be perferred.

In writing the above, no one, I trust, will be induced to suspect even, that I wish to disparage other preparations, of which there are now such a number, nearly all of which seem to have produced good effects on some soils, and with some persons. As an humble farmer, in my plain way, I have endeavored to respond to those who have been so kind as to deem my opinion and practice of some value.

Such as they are, very hurriedly written, I send them for publication, trusting that those, at least, who have induced me to prepare them, will properly appreciate my motives.

If acceptable to your readers, I may perhaps say more to them, occasionally, on subjects interesting to Agriculturists.

In haste most truly yours,
JOHN R. WOODS.

From the (Ala.) Cotton Planter and Soil.

Improved Cotton and Culture.

Dr. Cloud—*Dear Sir*:—By to-day's mail I send you the sample of cotton I mentioned in my last. You may remeber I mentioned to you several years ago, that I was experimenting on some cotton to improve its productiveness and staple. I have continued the experiments until I am satisfied I have a superior cotton, both in productiveness and staple. Last season I took one acre of hill side sandy land (you very well know what my land is), and in February I broke it up with a scooter. In March I subsoiled it; early in April I broke it again, and checked it off three feet by four. In each cross check, I deposited a tablespoonful of American Guano, which took about one thousand and eighty pounds to the acre. This Guano I covered with earth, and over it dropped the cotton seed. When the cotton was up two to four inches high, I run through it with the scooter plough, and thinned out the cotton to one stalk to a hill. This was all the ploughing the crop ever had—all the culture was given with the horse hoe. As the land was checked, I run the hoe both ways, which kept the ground perfectly level, and kept down all the grass and weeds. I was laughed at by many an old planter for attempting to cultivate cotton on a level; but when the weed began to bloom and boll, the laughter was not loud, but rather sober. There were just *thirty-four hundred stalks* on the acre, which would make it almost average one pound of cotton to the stalk. Many of the stalks are over seven feet high, and matured one hundred bolls. I regret that I had no means of weighing the seed cotton. I took it to a neighbor's gin, which was one of the old-fashioned kind, and got from the acre a bale of six hundred pounds of such cotton as the sample sent you. I am satisfied the gin has not done the staple justice. I shall plant of it this year fifty acres, and if we have a favorable growing year, I shall make one bale to the acre; when I shall endeavor to select one of the most approved gins for ginning cotton with a staple longer than the ordinary uplands. I have sent samples of this cotton to New Orleans, Charleston, and Montgomery.—The New Orleans factors class it as *Fancy*, and say it will bring sixteen cents in that market. The Montgomery factors say it will bring three cts. more, per pound, than the best cottons brought to their market. The bale I made goes to Providence, R.I., to be manufactured into spool thread, which the manufacturers say common uplands will not do.

I am satisfied from my observation, that one-half the diseases of crops are from injudicious culture. I do not believe drought will fire corn, or wet rust cotton, if properly cultivated. Thorough, deep culture before the seed is put in the ground, and the crop is more than half made. Then, with a level surface culture afterwards, whether the season be wet or dry, a remunerating crop will be the reward. I am aware that many old planters will say my notions are based upon Gardening principles. Admit it; thus should it be with every culture.—I have demonstrated to the planting world, that I make two bushels of corn where but one could be got before; and should I live another year, I will demonstrate that I make two bales of cotton where but one could be got before, and this with less labor than good planters ordinarily bestow. And now my dear Doctor, if we can get one bale of such cotton as the sample sent you, from such soil as you know mine is, who will care to move into the unhealthy regions of the South-West, to increase their production of cotton? Very truly yours,

CHAS. A. PEABODY.

From the Southern Planter.

Horses Need Air and Light.

If anything can be done to add to the comfort and health of the horse, no animal deserves more to have such an effort made. Our stables should be constructed with special reference to his comfort and health, and to these all other accessories must yield.

Our fathers' and grandfathers' barns were of the wide, old-fashioned sort, with all manner of loop holes and air-holes: between the vertical boarding you could put your whole hand. They were originally tight, but when well seasoned, there was light without windows, and the pure air circulated freely. Here was perfect ventilation, and yet talk with those same men about the necessity of ventilating a stable, and they are ready to prove that they have kept horses all their lives, who did well, worked well, were always in fine health and spirits, and that a ventilator is only a fancy idea—one of the new-fangled notions of the present generation.

Our stables have been improved in architectural beauty, and in more permanent form of construction; they are pleasing to the eye, tight, proof against the wind and weather, and with solid walls of brick and stone—all of which the poor horse would gladly exchange for the pure, fresh air, of which he is now deprived.

In providing for the necessities of a horse, it would be well to ask ourselves, how we should like to be placed in the same situation. If it is healthy for a man to live day and night in a close, damp cellar or underground apartment, then it is healthy for a horse. If it is healthy for a man to live on the lower floor, in an unventilated apartment, with a manure and root cellar beneath him, whose pestiferous miasmas are penetrating every crack, mingling with the foul air he breathes, and rising still higher, permeating the food he consumes, then it is healthy for a horse. But why argue against barn cellars and ill-ventilated apartments?—the proof is abundant to all who want it, and he that cannot be convinced, must cease to wonder why his horses have diseases of the skin, the lungs, the eye etc., or the glanders, the grease, the scratches, and other diseases that are directly treaceable to the impure atmosphere in which he compels them to stand and breathe.

We would, therefore, in the construction of a stable, endeavor to provide against these evils. Build root cellars and other cellars entirely distinct from the barn—at least not directly under the horse stalls; let there be a free circulation of air under the floor, and particularly so throughout the stable apartments. Ventilate the horse stable through the roof, and entirely independent of the other portions of the barn; let the connection between the horse stable and the hay mow be closed tight, except when hay is being delivered. Ventilate the carriage-house through the hay mow and roof.

Let your horses' heads be towards the side or end of the barn, and provide the head of each stall with a fair sized window: a horse wants, under all circumstances, whether tired, sick, or well, plenty of light.—When there is light and plenty of fresh air, it is a common practice to turn the stalls the other way, and keep the horse somewhat in the dark. A good horseman knows that a horse enjoys light and air as much as he does himself, and he will thrive better in the coldest winter on the lee side of a hay stack, than he will in a badly ventilated barn, however comfortable it may be otherwise. It is stated that, if the gases exhaled from a horse's body were were confined around him by a gas-tight bag, they would cause his death in twenty-four hours, allowing him at the same time to have his head out and to breathe the pure air.

If you want satin-skinned horses, in fine health and spirits, ready at all times to work or to drive, a thorough system of ventilation will be one very important step towards it.

A manure shed should be built outside the stable, and sufficent only to afford protection from wind and rain, with a door connecting with the barn, and running to the floor of the stable which should only be opened when the stable is being cleaned The exhalations of the manure heap are then not permitted to return to the Stable—nor should any of the gases generated in the stable, be allowed to pass into the carriage room or hay mow.

As a matter of economy, it is just as cheap to build a stable calculated to give a horse the greatest amount of comfort, as to build it in any other way. Cellars are handy arrangements, and in the first cost it may be cheaper to put them under the barn, but a few years' experience will show the heaviest balance on the debit sides.

GEO. E. WOODWARD.

New York, April 1860.

Fattening Hogs.

The method often practiced by large farmers of turning fattening hogs into the fields of standing corn, if properly conducted, has its advantages over that of gathering the corn and feeding it dry to the hogs in the pen.

The earlier in the season the process of fattening swine is begun the better, after the grain has reached a certain period of maturity, whether it be rye, oats, or corn; because all farm animals, and hogs in particular, will fatten much faster in warm than in cold weather. And the grain between periods of its doughy state and full maturity, or rather before it becomes dry, is more easily digested and assimulated and converted into flesh and fat than when it passed into its dry state. It is clear, then, that the sooner the hogs are turned into the field after the grains of corn are fully formed, and while yet in the milk, the more speedily they will fatten; for if the weather be dry the corn hardens very rapidly.

A very interesting experiment in feeding hogs is detailed by Mr. James Buckingham in the *Prairie Farmer*. On the 6th day of September (in ordinary seasons corn, at this date, is too far advanced to commence feeding to the best advantage,) the hogs, 189 in number, footed up in the aggregate 19,600 lbs. A moveable fence was used, confining the hogs to an area sufficient to afford food for two or three days. The entire field thus fed contains forty acres, with an estimated average of forty bushels per acre. The consumption of this corn gave a gain of 10,740 lbs. The hogs, when turned into the corn cost three cents per lb—equal to $588; worth, when fed, four cents per lb., or $1,213 60, giving a return for each acre of corn consumed of $15 64. Adding to this $1 per acre for the improvement of the land by feeding the corn on the field, making the actual gain $16 64, equal to forty cents per bushel standing in the field. The whole cost of corn per acre, exclusive of interest on the land, is set down at $3 65.

By way of comparing the advantages of ground and cooked food that which was merely ground, and that which was unground, Mr. B. put up three hogs into separate pens. To one he fed two and a half bushels corn in the ear, during a period of nine days, feeding all he would eat; this gave a gain of nineteen lbs.; another eat in the same time one and three-quarters bushel of corn, ground, and gained also nineteen lbs.; and to the third he fed one bushel of corn, ground and boiled, which gave a gain of twenty-two lbs. By this it will be seen that one and three-quarter bushels of corn when ground will give a gain of flesh equal to two and a half bushels of unground corn, and that one bushel when ground and cooked gave a gain of twenty-two lbs.

The comparative results of these three methods of feeding may be thus set down: one bushel of corn when ground and cooked is equal nearly to three bushels when fed dry and unground; and one and three-quarter bushels when ground and uncooked is equal to two and a half bushels when fed whole.

Or it may be stated thus: One bushel of dry corn in the ear makes 8½ lbs. of pork, at 4 cents per lb. is equal to 33 cents per bushel for the corn; while one bushel of corn, ground and boiled, makes 22 lbs. of pork, at 4 cents per lb., and is equal to 88 cents per bushel for the corn.

Had the hogs been turned into the field when the corn was in the milk, it would have given a result more nearly like that of the hog fed upon ground and cooked food.

The obstacles which seem to be in the way of adopting an improved method of fattening hogs, result from the imperfect apparatus used for preparing the food. Sending corn a long distance to mill to be ground, and then to cook the meal in an ordinary kettle, even if it holds a barrel, will prove an expensive operation, as all have found who have undertaken it. But to realize the full advantages of feeding prepared food, a complete grinding and steaming apparatus must be erected on a large scale, with the view to perform the grinding, cooking, and feeding, with the greatest facility and at the least possible cost. This may be done to advantage by employing steam for grinding, using the same boiler to furnish steam for cooking the meal.—[*Valley Farmer.*

From the Farmer and Planter.

Plaster, and the way to Apply It.

Mr. Editor:—Plaster should be ground fine and kept dry. It shold be sown on grass land in the spring, after the grass is from four to six inches high. The use of plaster consists in supplying sulphuric acid to dissolve the vegetable carbon, or leaf-mould, collected on the surface, and is more effective in a dry than wet season.

Plaster should not be put in the hills—because but a small part will be dissolved the first season, and if it could be, would give an unnatural stimulus to the roots.—If one-fourth of a gill should be put into a hill of potatoes or corn, it would require four gallons of water to dissolve it, and if not dissolved, it produces no effect.

Try an Experiment. Manure a piece of land for potatoes or corn, and on one-half put the usual quantity of plaster in the hill, and on the other half put the same quantity in the following manner: When the potato tops are about half grown, take a common tin cullender that will hold about three gills, and take up about one gill at a time, and sift over the tops and hill, scattering it as much as possible. At harvest, note the difference in the product. If the season should be dry, and the potato tops present a yellow sickly appearance, a very marked difference, a great change for the better, will be observable on that part of the field on which the plaster was applied above ground in a very few days.

As crops may, at times, be benefitted by an application of plaster, in dry seasons, or in a dry time, in a wet one, wheat, oats, barley, and other crops, presenting a yellow, sickly appearance, indicate that they lack of carbon. By sowing one bushel of plaster to the acre, even as late as when the grain is in blossom, ten or twenty times the cost may be realized in the crops.

Plaster should not be mixed with manure—because manure is composed when dry, of nearly pure carbon, and the active element of plaster is sulphuric acid—two elements as antagonistic as well can be. Heat results from the contact of carbon and sulphuric acid, even when the acid is diluted with 499 parts of water to one one of acid It should be applied, therefore to the roots of plants with knowledge, judgment and care.

Bees—To Destroy Millers or Bee Moths.

A correspondent of the *New York Evening Post* gave, last year, an account of his success with a plan which he has adopted for the destruction of millers or bee moths, as follows:

When the season arrived, I put out a white plate, containing a mixture of molasses and vinegar well stirred up together. This I continued through all the warm nights of the latter part of July and forepart of August, setting the plate at night on a level with the bottom of a hive and near to it, and removing the number of millers caught during the night in the liquid on the plate, and in three or four weeks I trapped one thousand. They do not fly much except in very warm nights, and seem to discontinue their operations about the middle of August. I mention these facts for the benefit of those who keep bees, and I have strong hopes, that by adopting and making a thorough trial of this trapping system, the depredations of the millers may be arrested, and that they may be finally banished from the apiary.

From the Farmer and Gardener.

A Successful Farmer's Testimony in Favor of Agricultural Journals.

Mr. Editor :—This is a hard country to get subscribers for an agricultural journal. Still I occasionally pick up one or two for you. For eight years I was a constant reader of the "Farm Journal," and for five years a subscriber to the "American Farmer," as well as being in receipt of occasional agricultural documents. For these reasons, perhaps, some of my neighbors call me the "book farmer." To this title I have no objection, as I have profited more by giving attention and practising the teachings my agricultural papers contain, than any farmer would profit in a lifetime by farming as father and grandfather did before them.

Some of my neighbors refuse to pay one dollar for the "*Farmer and Gardener*," but are still profiting by the few dollars I spend for it and other journals. They wonder how the "book farmer" has managed to make his farm, which ten years ago did not produce *two hundred* bushels of grain, winter and summer crop, yield for the past five years more than *two thousand* bushels per annum. We sometimes see them peeping over the fence, and gazing with surprise upon the heavy crops growing there. They cannot understand how the thing is managed. Now, Mr. Editor, I do not desire to be considered a boaster, but I will say, that what progress I have made in farming, I attribute mainly to my agricultural journals, and my advice to my neigbors and every farmer is, send on your dollar and get a good agricultural journal. And when you get it do not lay it on the shelf, and say you have not time to read it, but give it an attentive perusal; read every line of it, and my word for it, your wonderings will cease. You will be benefited almost without being aware of the fact.

S. G. S.

Adams County, Pa.

Treatment of Chronic Cough.—Chronic cough is an affection very prevalent among horses, and is often occasioned by a morbid irritability of the membrane, which gives an internal covering to the respiratory passages; for the treatment of this kind of cough the following is recommended:

Balsam Copiaba, - - - -	1 oz.
Sweet Spirits of Nitre, - -	2 oz.
Syrup of Garlic, - - - - -	4 oz.
Glycerine, - - - - - - -	2 oz.

Mix.

Dose.—1 oz. of the above mixture constitutes a *dose;* the same is to be given once daily, diluted with a small quantity of water.

In the treatment of all cases of cough, depending on irritability of the respiratory membrane, it is advisable to allow the patient a generous supply of flaxseed tea, or flaxseed mucilage, which will tend materially to lessen the cough, and will improve the condition of the patient.

Whitewash That Will not Rub Off.—Mix up half a pailfull of lime and water, ready to put it on the wall, then take one gill of flour and mix it with the water; then pour on it boiling water sufficient to thicken it; pour it while hot into the whitewash: stir all well together, and it is ready for use.

The N. C. Planter.

RALEIGH, DECEMBER, 1860.

☞ Subscribers receiving the Planter with a *cross mark* opposite their address, are thereby notified that the No. thus marked closes the time for which they have paid, and unless renewed, the paper will be sent no longer. We earnestly request all who find the cross mark on this No. to promptly forward the money for the Planter another year, and if possible, send another name (or a club) along with it.

The cash in advance plan is now adopted by all the papers of the country, and we believe our subscribers will like it better than the credit system; hence, we have adopted it, and must rigidly adhere to it. No one will therefore feel agrieved when he finds his Planter discontinued, if he neglects to send on money to renew. All will be treated alike. We trust, however, all will like us so well, that each will send on his renewal as soon as he sees the *cross mark.*

LIVE FENCES.

The subject of this editorial, so important to this and all agricultural countries, testifies in every portion of the South, to the want of agricultural skill; and proves that it is bound to live and die in this condition. Consider the vast saving of labor to be applied to draining, making and applying manure, the vast saving of wood and timber for fuel and building; the great increase of arable, by rendering less woodland necessary, as advantages arising from live fences. Can we plead ignorance of the several modes of raising fences, suitable to our soils and climate? Certainly not. Upon this subject volumes have been written and published, and yet, we have not profited by the learning and experience with which they abound, and little good, therefore, can be expected from our feeble effort. It may seem useless to some for us to introduce the subject; to say much, would be disrespectful to the authors of these volumes, and presuming on the ignorance of the public; to say nothing might be construed into a neglect of duty. Different plants have been recommended as proper for making live fences, but we shall confine our observations to one, because our knowledge does not extend to the others. The Cedar in many of the Southern States, and throughout a great district of the whole country, makes an excellent live fence. It throws out limbs or bows near the ground which are susceptible of being twisted or woven into any form.

Now, for the construction of the fence, plant the young cedars on both sides of a straight fence, two feet apart, permitting those on one side to be opposite the centre of the vacancies of those on the other.—Each row should be the distance of one foot from the fence, making a distance of two feet between the rows. When they obtain the proper height, top them, which causes the limbs or branches to put out thicker and closer, when the branches are sufficiently long to reach from tree to tree in every direction, weave them around the bodies, length-wise and cross-wise, so as to form a double hedge; when completed, and the branches shall become stiff by age, it will resist all animals, and be a fence for the maker and his posterity. We deem it unnecessary to mention every minutia in this operation, many ideas will suggest themselves to the intelligent operator; but we deem it of great importance to urge the necessity of substituting live for dead fences. Will nothing but dire necessity drive the farmers and planters of the country to this improvement in agriculture?—Reflect a moment on its great advantages, the saving of labor, wood and timber, which can be applied to other beneficial purposes. Never suffer the hedges thus formed to grow higher than an ordinary fence, this must be prevented by an annual topping, which causes the branches to increase, thereby rendering them impenetrable, even by the hog. When planted on the embankment of a ditch, four feet in addition to that will be sufficient to turn ordinary stock, the ditch always forming an impediment to an easy access to the hedge or live fence. Whenever you neglect to check the perpendicular height or growth of the hedge by topping, the limbs or branches begin to perish and render the training difficult or impossible. These hedges, while young, should be cultivated and kept free from briars, weeds and other obstructions to their growth.—The paucity of population in many portions of the country proceed from the poverty of the soil, whether natural or rendered so by improvident husbandry. In the lattter case are the Fathers of the present day, like the aborigines of the country, determined to manifest their regard for their children by scalping the Mother? Then cease to exhaust mother Earth by your reckless system of cultivation, enclose your crops and fruit trees with your live fences, apply the labor thus saved to the improvement, and the result will be a rapid increase of population, cheaper breadstuffs and other necessaries of life. In a natural point of view wealth instead of poverty, power instead of weakness, competence instead of poverty will march in the train of permanent enclosures. To provide for the prosperity of the country, and rescue posterity from wretchedness and ignorance, is the duty of all, the distinguishing virtue of patriots and philanthropists. What is the cause of the appalling difference between the average product of land in this country and in England? England, no larger than some states of this confederacy, is supporting a population equal to that of our whole country. This fact should dissipate our delusion in regard to the present quality of our soil, awaken an enquiry as to the cause of this inferiority, and rouse all our energies in search of a remedy. In our opinion,the present system of enclosing is one of the principal causes. The history of no country exhibits a good system of agriculture in connection with dead fences. They were exploded in the old countries more than three thousand years ago, but are continued here as an evidence of our ignorance and inferiority in agriculture. The prejudice in favor of the customs of our Fathers, too strong to be stormed, subdued and taken prisoner by the weapons of reason, while productive of no injury or evil, so those who indulge it may be respected, but when likely to become the mother of evil, deserves the contempt of those likely to suffer by it. Yet, contrary to its own senses, suffers a sacrifice of its own interest, and though convinced through its own eyes, of the benefit arising from any departure from an old custom, it will not be convinced through its own mouth, and confess that the present mode of making crops is insufficient to supply the wants of a dense population per square mile, equal to that of England and other countries, and the effect of its conviction of one error, is defeated by its blind persistence in some other. Truth requires but one demonstration, let any intelligent man contrast the condition of two countries or sections thereof, one which has adopted live fences as a system of enclosing, the other keeping up the old dead wooden fences; and the superiority of the former in every respect will readily be admitted. We deem it unnecessary to enumerate every consideration in favor of the system of enclosing, which we are endeavoring to recommend; many are intentionally omitted, because they will be suggested to every reflecting mind. A word to the wise is sufficient.

Rust in Cotton.

EDITORS SOUTHERN CULTIVATOR——Much has been written upon this subject by men of science, as well as by practical farmers, as to what the disease is, the cause that produces it, and the remedy for its extirpation. It is regarded by the farmer as a paractical fungus; and doubtless correctly, the same that attacks Wheat and other small grain.

From the great rapidity with which it spreads, especially during certain seasons, we for some time regarded it as an insect; but from our reading and observation, it is evident that this fungus has the characteristic of maturing and shedding minute seeds, which at that stage becomes a floating mass, and infests neighboring districts or fields, and is consequently an epidemic.

It has existed on Wheat almost time immemorial. It was known to the Hebrews, Greeks and Romans; even our Maker threatened the "Isrealites with blasting and mildew." Its operation is said to be in intercepting the sap, by its roots, from the foliage and fruit, and thereby causing decay in both.

For so great a scourge to so important a commodity as Cotton, the subject should never lose its interest until a preventive or remedy is known for it. It is to be found frequently on all localities, regardless of size or healthfulness of the plant at time of attack; wet or dry seasons; sandy, loamy, clayed or prairie sods, and indeed in every variety of soil, from the richest or poorest new ground to that of mature old age.

In its first appearance, we are of the opinion that it is confined to feeble or unhealthy plants, otherwise it would develop itself in large spots, if not whole fields, at the same time, (which we know to be otherwise,) and induced probably by sudden transitions and vicissitudes of temperature, and the absence of the necessary elements of fertility. The soil, therefore, having some agency in originating this disease.

It is suggested by Dr. D. Lee, and other high authority, to be owing to *mineralogical* agencies. This is the most plausible conclusion we have seen presented, yet it does not always seem to be sustained by facts; unless the constituents of soils vary in a circumference of twenty or thirty feet, as often appears in rusted Cotton, or is delayed in developing itself from the chemical changes going on in the earth, regardless of locality; and the theory denied that plants extract from the soil, as food, only those substances exactly suited to their growth; or if absorbed, would subsequently be expelled by their roots, whilst the others remained dormant or inactive unto required as food by different plants. If this theory be true, deleterious effect, it would seem, would result from substances unsuited. That some minerals are adapted to the Cotton plant especially, under certain seasons, does not admit of a doubt. It is exhibited in the *experiment* of Mr. David Dickson, in the application of *salt alone*, as a fertilizer, reported by the editor of the *Southern Recorder*, a short time since, and by a contributor to the *Farmer & Planter* some years ago, who arrested it by sowing salt on the plants while wet with dew, on its first appearance; and also in an experiment of our own, made this year, of one bushel of salt to the acre, mixed with, each, 160 lbs. of American Guano, Reese's Superphosphate of Lime, applied in the drill before bedding, on none of which is there any rust, except on some moist places, where it is quite slight. The yield from these fertilizers will be nearly thrice as great as where no manure was used; nor did we have any rust where stable manure or Cotton Seed was used. It was worse where no manure was applied. Land all sandy loam. It is fair to remark that the salt had undergone the ordeal of a hot fire in the burning of a large warehouse. The planting seed, of the entire crop, was rolled in Gypsom; hence, we cannot attribute our success to the credit of salt alone.

The use of salt, as a fertilizer, is not of recent date. Various experiments made with it in England, fifty odd years ago, on Wheat, some of which as follows: "Salt combined with manure, salt with oil cake, salt with lime, salt with oil cake and manure, salt with lime and dung, salt by itself, applied and dug in before sowing the Wheat, also on the surface with the seed." The application of these combinations was made in every imaginary form; and the largest yield was from salt and manure; salt sowed with the seed; manure dug in—quantity used 45 tons manure, 5½ bushels salt per acre; yield 95 bushels, weighing 59 lbs. The next largest yield was salt alone, 44 bushels, mixed with soil four inches deep before sowing——result, 91 bushels Wheat, weighing 59 lbs. The effect being most visible in the *full*, *plump* grain, rather than to an exuberant vegetation.

When applied with judgment, it is said to act favorably on all small grain. Also, on Irish Potatoes, Beets, Turnips, Onions, Parsnips, Carrots, &c. It is known to kill worms, grubs, vermin, and destroy weeds. When dissolved in water and sprinkle, with a brush on diseased plants, it is instantaneous death to the fungus, and a preventive of mildew. It has also a moisture-absorbing quality, and that when it comes in contact with lime.

To sum up our views, we are persuaded that this malady can, in a great measure, be avoided by confining its culture to fresh (timbered) land, (open prarie being unfriendly to it) while it abounds in humus; and by such a system of husbandry as will return to old land vegetable matter in a green, decaying or decomposed state, or by putresent manures from the barn yard, seed pile (cotton), marshes, &c.

Clayey lands are not so subject to this disease, being less under the influence of atmotpheric changes.

We have been inclined to attribute it to defective cultivation, but that would admit of an effectual remedy under the improved method of deep preparation, surface culture and high manuring, cases of which are in point among some of the Hancock planters, and others of less renown, who are not always exempt from it; yet it is, doubtless, an auxiliary in preventing it.

With these desultory remarks, we hope to elicit further thoughts from gentlemen of science.

Respectfully, B. A. SORSBY.
Columbus, Ga., Oct., 1860.

Mr. Peabody's Cotton.

Having heard much said about the fine appearance of the cotton crop now growing on the farm of Mr. Charles A. Peabody, in Russell county, Ala., a few miles from this city, we concluded last week to pay him a visit and see if half we heard was true.—Mr. P. has what he calls fifty acres of pine land planted in cotton—some of it has been in cultivation for twenty or more years, some four, ten, &c. Like his neighbors, and nearly every body in this section, his crop passed a severe ordeal of drouth in June and July, but unlike every body else's cotton, his seems to have come unscathed. The weed averages from hip to waist high and taller, and is heavily loaded with bolls and forms from bottom to top. The bolls are large and the stalk vigorous. It is planted in checks, four feet distance each way, and in the fresher land the limelock. Scarcely a boll or form has fallen off. It is evident that the luxuriant growth and bearing is the result solely of the mode of manuring, planting and cultivation.—The land is poor, and could not, in the ordinary mode of planting and cultivation, have produced, this year, more than one-eighth what is now on the stalks. Mr. P. informed us that he put on the land about 170 lbs. of American Guano to the acre.—Our judgment is, that the yield this year will range, according to quality of land, from 1200 to 1800 pounds to the acre.—The lint is of an exceedingly fine texture and the staple long. He informs us that he has a bid from Manchester, for his entire crop, at 25 cents per pound, if it shall come up to his samples of last year. The present crop is fully up to the last in quality.

What a commentary is this on the mode of cultivation of the cotton plant, which has been handed down from our fathers, and is still stubbornly persisted in. Planting is the only one of the arts that has not been improved. Why has it not, and why should it not be? Why persist in a mode of culture for forty years without even an effort to improve? That it has not been done, is a severe commentary on the intelligence of the producers of staple, now termed not only king of commerce, but which it is thought regulates the temper of nations. The advance made by Mr. Peabody, by experiments running through about three years, has accomplished about as great a revolution in the production of cotton as Fulton accomplished above horse-power when he proved the applicability of steam as a propelling power. There are possibly some who are stupid enough to conclude that if all should do as Mr. Peabody, the markets would at once be glutted and the staple rendered of little value. We trust, however, that of these there are few. If by improved culture we can produce, on half the land and with half the labor, a sufficient supply of cotton to meet the demands of consumption at remunerating prices, have we no use for the surplus land and labor? We have, and far more, in the surplus land and labor? We have, the production of breadstuffs, meats, mules, horses, &c., for home consumption. For these articles alone, Georgia is annually sending millions out of the State.

The experiment has been made, and the result proves that with the expenditure of about four dollars per acre for manures, lands which are considered worthlesthroughout the Cotton States, and can be purchased for from 12½ cents to one dollar per acre, can be made to produce more cotton than the best fifty dollar lands in Georgia and Alabama can be made to do without it.

The mode of cultivation adopted by Mr.

Peabody is worthy the attention of every planter of the staple, and none who will pay him a visit and see the results, can come away unconvinced of its being within the power of every planter to produce the same results with less labor than is required by the common mode of culture. It is well worth the travel of one thousand miles to see the present growing crop, and we advise all who can do so, to give Mr. P. a call. He will take pleasure in showing them through and of explaining his mode of cultivation.

The seed used by Mr. P. is of his own improving.

[*Columbus Sun.*

Deep Plowing.

Mr. Youngs Coleman, a practical and pains taking farmer, of San Patrico county has informed the Ranchero of the particulars and results of his experiments in deep plowing the season. It is well worth publishing all over the State, says the Ranchero Texan.

He first plowed his ground deep as possible with the common plow, and then bedded up rows due east and west, at the same time making between each row what is termed the 'water-furrow.' The bottom of these water-furrows was subsoiled, and in them planted the corn. In this way the soil was partially loosened up to the depth of from fourteen to sixteen inches. The object of bedding up east and west, was because the beds serve as a sure protection to the young corn against the cold north winds that prevail during the early spring. His field was cultivated as behooves a husbandman who would succeed. Even less labor was performed, than would have been necessary in a wet season. With the drouth a little labor was sufficient to keep the field entirely free from weeds.

After considering this mode of preparing the ground let us turn to the result of his experimental labors. The cornfield contained thirty acres, and produced an average yield of thirty bushels to the acre— nine hundred bushels of corn and the fodder! Think of this, ye farmers who till your soil with the fork of a tree. Think of it ye who planted thirty acres and raised nothing.— Notwithstanding the dryness of the season, here is a case in point that demonstrates beyond cavil the complete success in agriculture attendant upon deep plowing.

In this climate and with our soil, success in farming can be obtained every season only by deep cultivation. The ground must be plowed up at least eighteen inches, when it will be found to possess all the qualities requisite to the best soil in the world. Its better to plant one acre and raise thirty bushels of corn, than plant thirty acres and raise nothing.

Loosening up the earth to any desired depth could be done with a gang of colters. Of course a plow would be preferable; but Mr. Coleman with his practical experience, seems to think they would be sufficient to insure good crops. This all important subject should command the serious attention of all those identified with the farming interests of the West. Science points it out, and experience has demonstrated its practicability.

From the Southern Planter.

Experiments with Plaster on Pea Fallow

I last year had 2 bbls. plaster, (all I had,) sown on a part of my pea fallow; the plaster was applied to the poorest and lightest part of the field at the rate of a half bushel per acre, the peas had about 6 or 8 leaves at the time the application was made. In a few weeks the vines were a much deeper green and were much more flourishing than those adjacent without plaster. The whole field was fallowed and put into wheat at the usual time. About the 1st of January, the wheat on the plastered portion began to take the start and maintained it up to harvest; and when cut, I think was fully four times as good as the balance of the field, notwithstanding the pea vines were twice as good on some richer parts of the field, where there had been no plaster. The joint-worm fly seemed to attack an unplastered wheat to the very row where the plaster stopped. I did not thresh or measure the product separately, but all my neighbors who saw the crop when growing, I am sure, will concur with me in the above estimates of of the product. The growth of weeds, &c., on the land since harvest, distinctly mark the boundaries of the plastered portion.

I have applied plaster to the whole of my pea fallow (130 acres) this year, and have the best growth of vines I have ever had. On portion of the fallow, not plastered, to see the difference, I think the growth is scarcely one-fourth of what it is on the same land alongside of it with the plaster.

On a part of the fallow I applied 1 bushel per acre, on the last sowing, about the 1st of July I applied half bushel plaster and half bushel leached ashes well mixed together. I can see no difference in the pea vines. If plaster will act as well on all lands, I think we may save the expense of buying guano in future. I have frequently used guano, but have never seen the best Peruvian produce so fine an effect as this small application of plaster on pea vines has produced this year. The land on which the experiment was made, is light Mattaponi land, well adapted to corn, but rather too sandy for a heavy crop of wheat. ED. HILL.

King William County.

From the Darlington Southerner.

Horses and Mules.

READ BEFORE THE DARLINGTON AGRICULTURAL SOCIETY.

There is no animal more necessary to man than the horse; none upon which he is so dependent; and none other that has suffered so deeply from the ills incident to man's fallen condition. The horse is literally man's companion; at the same time he is emphatically his servant. In no condition of society, from the most civilized and enlightened to the most rude and barbarous, can the services of the horse be dispensed with. Even in our enlightened age of steam-power, and other facilities for locomotion and inter-communication, were the horse to be stricken from existence, society would immediately come to a stand—no other animal can be found to fill his place.

No other animal exists whose labors, toils and suffering are so poorly requited by the necessary care and kindness of man, as the horse and mule. In the past ages of the world, the horse and mule were, emphatically, the right of commerce, as well as of war and agriculture. In the two latter departments, his position has not been superseded by the invention of genius, though his toils and sufferings have been greatly mitigated.

As we have already remarked, the horse and mule are truly the right arm of agriculture. Without their aid we are unable to remove heavy burthens on the farm, from one point to another; we rely upon his strength for breaking up and continually pulverizing the soil, thus saving an immense amount of manual labor. But it is needless, before this Society, for me to enlarge further upon the various uses and the services required of the horse and mule. The subject connected with this Report, which most deeply interests this Society, and most naturally claims its attention at present, is the *exhorbitant prices* demanded in the purchase of mules and horses; also, the very great probability of prices continuing to rise in future. The supply, of course, cannot be equal to the demand, and this great demand is not only kept up, but greatly increased, from the want of that proper care and treatment of our stock, which would insure the lives of many that annually meet with an untimely death.

The raising of mules (a hybrid which does not propagate its species) may be adduced as another reason why the supply continues to fall so far short of the demand. The natural tendency of this system is to exterminate this race of animals. But the very great cause of scarcity of horses and mules in the market, is owing to the fact that the southern and South-western planters depend, almost exclusively, upon the North-Western States to supply their markets, rather than appropriate a portion of their capital to the raising of stock for home use, and the supply of home markets.

This unnecessary and unnatural dependence causes the planter to pay dearly for the whistle, when he is compelled to raise cotton on poor land, with which he is to purchase mules and horses at exhorbitant rates.

Stern necessity will very soon teach the Southern agriculturist the great importance of taking more care of his stock, though he may be deaf to the claims of humanity.

It is a great reproach upon the southern planter, both in view of humanity and economy, that we compel our work-animals to waste so much muscular power in performing the office of straw-cutter, corn-sheller and grist-mill, after the labor of the day is over, before they can prepare the food which nature requires to sustain the body, necessarily depriving them of much time for the rest they so much need.

The planter will find it to be true economy to provide snug and secure stables where his horses may rest in safety, after the labors of the day have been performed. He will also find it economy and to his interest, to procure a good straw-cutter, corn-sheller and grist-mill; attach all to a light set of cast-iron machinery, in the same building, to be driven by horse-power.

Two-thirds of the grain which we feed away to our animals, if properly prepared, will yield more nutriment, and keep our horses in better condition, than the whole quantity now fed away in its indigestible form. Every one who has the least observation will know, that a great deal of the food fed away in its crude state, is taken into the system before it has been masticated, and consequently does not yield one iota of nourishment to the animal. We need no stronger evidence of the want of Southern thrift than the fact, which not unfrequently meets our eyes in passing many farms, where we see the stock standing in open lots, exposed to the scorching rays of the sun in summer, and the drenching rains of winter, anxiously waiting for a scanty meal. Perhaps, after the horse has performed the labors and toils of the day, he finds himself compelled to carry his hard earned supper on his back to a distant market, to satisfy the avarice of some dishonest negro, or more dishonest negro-trafficer.

Again, many cases of fatality among horses are owing to a want of knowledge on the part of the owner as to the real disease with which the horse is attacked, as indicated from the symptoms. Every owner will occasionally find himself at a loss to determine the character of the disease; consequently, much work is done in the dark, and many remedies used, which absolutely prove deleterious, instead of beneficial. Probably it would be well if our State Agricultural Society would offer premiums to men acquainted with comparative anatomy, for dissertations on the diseases of horses. Those dissertations, to be written after post-mortem examinations have been made, to be submitted to competent judges, who will determine their comparative merit, and have the same published for the benefit of all interested.

Respectfully submitted,
WM. E. JAMES, *Ch'n.*

From the Working Farmer.

Manures.

Our friend "J. P. T.," of Virginia, asks us for information on the subject of manures, and wishes to know what Virginia planters are to do with their large estates and small stables. He states that his stables will not supply one cart load of stable manure for each acre of his plantation, and under such circumstances he finds it difficult to decide what should be the manure for his district. He has already used Peruvian Guano, and found in his practice, that if applied in a pure state, it often arrests the germination of seeds; in case of drouth, having no hygrometric power, it gives no relief, but permits the crops to be destroyed; he has also found in degree, that the dose of guano required to raise crops must gradually be increased. The experiences of the market gardeners at New Utrecht, are of the same character. They commenced with using 200 lbs. of Peruvian Guano per acre, and were successful in raising crops; they have found it necessary gradually to increase the quantity, until now they require 1200 lbs. per acre to produce satisfactory results; the cause of this is to be found in the composition of guano, the more volatile portions of stimulating crops by enabling moisture in the soil to dissolve the larger amount of the progressed inorganic matter, and thus the soils are suddenly denuded of all their components capable of producing plant-life. Therefore, to cause the solution of larger portions of inorganic matter, very increased quantities of Peruvian Guano are called for, and this will be the case with the entire Atlantic slope, subjected to the operation of guano. The excess of ammonia contained in the guano, gives to the water the power of dissolving a larger amount of inorganic matter, and that portion which has been returned to the soil by the decay of plants, being really the only portion capable of sustaining the higher class of plants, is first dissolved and re appropriated. A few crops so produced denude the soil of all pabulum capable of producing the required crops, and its after culture can only be maintained by such large doses of Peruvian Guano as can, in itself, produce the raw material of which plants are made, failing to produce this result during times of drouth.

We advise our friend "J. P. T." to change his Peruvian Guano as we have done, into the equivalent of Nitrogenized Super-phosphate of Lime, viz: to treat 100 lbs. of bone dust, calcined, with 56 lbs. of Peruvian Guano, and 20 lbs. of sulphate of ammonia, and add to these an equal weight of dried blood; this mixture is equilibrated and contains exactly the constituents which will feed the current crops, and will not be thrown out of balance while performing this office; and while the growing crops are supplied with all their necessities by this mixture, the soil itself, like a soil in fallow, will be progressing in organic matter contained in itself for future crops.—With such treatment, without an increase in the quantity of fertilizing material added, he may continue his plantation in full heart for all time, at less than two-thirds the cost at which he can do it with Peruvian Guano, and instead of impoverishing the soil by an exhausting manure, as with guano, he will continually improve its power, so that after a few years use of this manure, he may, if he should wish to pursue such a course, continue to raise crops for five or ten years at least, without any expense for fertilizing materials.

We are far from advocating the latter course, believing, as we do, that the true philosophy of farming is, to apply all the fertilizing materials that can be used with increased profit, rather than giving the land only so much as will produce a crop.

Colic in Horses.

I will give you a receipt which I have known to cure in a few minutes. I knew a horse taken with it on a tread wheel to a carding machine, so that the owner thought he could not live. He got the veterinary surgeons, and they did what they could, and all decided that the horse must die. The man's wife, who believed and practiced hygiene, from the time the horse was taken, tried to persuade her husband to use a wet bandage, but he insisted it would do no good. After all had given up that the horse could not live, by her entreatics—the doctors saying it would do no good or hurt—he took a thick bed comforter, bound it around the horse, went to the well and drew water, and poured it on till thoroughly soaked. It seemed like a pot boiling. In less than fifteen minutes from the time he commenced the watering process, the horse was up and eating, to the great surprise of the horsedoctors, who knew it could not live. The horse did good service afterwards. This recipe I gave several years ago, and it was copied into most as I was told by an editor, of the agricultural, and many other papers in the United States. Many have tried and proved it. Try it, brother farmers.—*Farmer's Advocate.*

From the Farmer and Planter.

A Valuable Remedy for Skippers, &c.

FRIEND STOKES: I think the Farmer and Planter deserving something more than my subscription, so I give you a recipe, worth many times the subscription price, at least to my brother countrymen who cure and eat their own bacon. It is a certain exterminator of Skipper and eggs.

Make a strong decoction of elder leaves and young twigs, and immerse the ham into it, boiling hot, for a minute or two. No bad taste or flavor is given the meat, while insect and egg is utterly destroyed. Applied cold, it will be found just as effective on the live animal. The leaves and twigs, scattered about a room, and renewed as they become dry, will drive out 'roaches, and other kindred insects. I have driven ground-moles from particular beds in my garden, when troublesome, by inserting a few green leaves in their back paths. Those who will give the above a fair trial will be amply rewarded for their trouble.

CURING HAMS.—At length the famous "Hewbold Receipe" for curing hams has been discovered. The old gentleman was very choice of his secret, and preserved it till the day of his death. After that event, the receipe was found hid away in a hole, in the cellar wall. Here it is: Seven pounds coarse salt, five pounds brown sugar, two ounces pearlash, and four gallons of water. Boil all together and scum when cold. Put it on the meat. Hams remain in eight weeks. The above is for one hundred pounds weight.

Horticulture.

Culture of Fruit Trees.

The healthful development of fruit trees, as of other living substances, depends on the regular reception of a certain quantity of appropriate food. This food, whether derived from the earth, air, water, or other natural elements, is conveyed through the medium of the atmosphere and the soil.—While we have only an indirect and imperfect control of the atmosphere, and other meterological agents, the great Arbiter of Nature has committed the soil directly to our care and treatment.

2. To this I may add the general sentiment in favor of thorough and perfect drainage, beneficial to all cultivators, but indispensable to the fruit grower.

3. Not less uniform is the experience of the salutary effects of a proper preparation of the soil for fruit trees, both in the nursery and in the orchard.

These principles are settled in the minds of all intelligent fruit growers; but they need to be often promulgated and enforced. It should also be equally well understood that success depends upon the adaptation of the habits of the tree to the constituents of the soil, the location, and aspect and exposure. A disregard of this principle, and the fickleness of seasons, are among the most common causes of failure, not only among inexperienced cultivators, but among professed promologists.

More attention should be given not only to the location, but especially the aspect of the trees A common error is to disregard the time of ripening. We plant our earliest fruits in the warmest and most genial locations. These should be assigned to our latest varieties. For instance, we, at the north, have too often placed our late fall and winter pears, like Easter Beurre, or Beurre d'Aremburg, in northern aspects and exposed positions, where they are liable to injury by the gales and frosts of autumn, whereas we should have given them a southern aspect, and our most fertile soils, to bring them to perfection. The most favorable locations are not so indispensable to our summer fruits, which mature early beneath the direct rays of the sun, and in a much higher temperature. This rule may require modification, and even reversion, to adapt it to the south or southwest portions of our country. But here I cannot refrain from expressing the earnest hope that our local catalogues may be framed with a wise reference to this principle, and that the day may not be distant when catalogues shall designate the locality, aspect and soil adapted to each variety of fruit.

But however important these considerations may be, the subsequent cultivation of trees must receive a passing notice, even at the risk of repeating some observations of myself and others, already before the public.

The sentiments expressed in the communication of Mr. J. J. Thomas, at our last session, against the growth of any other crop in orchards, especially against relying on small circles, dug around trees in grass ground, as a method of culture, deserves to be held in perpetual remembrance. Equally injurious, in my opinion, is the habit of deep digging or plowing among fruit trees, thereby cutting off the roots, and destroying the fibrous feeders which frequently extend beyond the sweep of the branches. However necessary the practice may be of cutting off roots in old trees, in the process of renovation, it should be carefully avoided in grounds properly prepared, and where the trees are in a healthy or bearing condition. From experiment and observation, I am satisfied that working the soil among fruit trees to the depth of more than three or four inches, should be carefully avoided. The surface should be worked only with a hoe, or scarifier, for the purpose of stirring the soil, and keeping out the weeds. Thus we avail ourselves of what, in farming, is called first-culture, at present so popular. For the same reason, manure should not be dug in to any considerable depth, and some of our best cultivators now recommend its application on the surface. So favorably impressed with this practice is the Massachusetts Board of Agriculture, that it has ordered a series of experiments with cereal grains, and other products, in the application of manures on the surface, as compared with specified depths beneath it.

The practice of surface manuring is no novelty of our day. An eminent cultivator of fruit, nearly two hundred years ago, said: "Manure should be applied to fruit trees in the autumn, upon the surface, that the rains, snows and frosts may convey the elements of fertility to the roots;" and "that by this method, one load will do more good than two used in the common way of trenching in to the depth of one foot." Other distinguished cultivators and scientific gentlmen recommend the same practice. Hence we are of opinion that our orchards and gardens should be manured in the autumn, and on the surface, so that the manures may be thoroughly decomposed, made soluble during the fall and winter, and suitable for the nourishment of the tree early in the spring.

In the history of this art, as of most others, it is wonderful how human opinions change. What were once considered as fundamental, are now rejected as unphilosophical or injurious, and those once rejected are now adapted as maxims. The doctrine has prevailed, from the time of Columella and Varro, that manures should not be exposed to the air, but should be incorporated with the soil as laid out; whereas we have now the opinions of cultivators and chemists in favor of exposure to the air, and other external agents of decomposition, and that it is not a source of nutrition to the plant until it is thoroughly decomposed. This opinion is certainly corroborated by the practice of skillful gardeners in all past time, who will never use green manure in the potting or cultivation of plants, and only that which has become old and fine.

The Peach crop and Peach Culture.

The prospective loss of the peach crop, the coming season, over a very large extent of country, may be justly regarded as a serious matter, both to peach growers and consumers. Our markets, for so many years, have been so bountifully supplied with this most luscious of fruits, that any thing like a general failure of the crop is felt to be a deprivation of no ordinary character. Of rapid growth, hardy, productive, and, like the grape vine and the currant, coming into bearing the fourth year after planting, the culture of the peach was, at one time, a soure of great profit, and especially in the light gravelly and sandy loams of New Jersey, Deleware, Maryland and Virginia, where it flourishes in the greatest perfection. But either our climate has undergone a change of late years, or our cultivators have become more careless in protecting their trees from those sudden changes of temperature to which they have ever been subjected in early spring—the consequences has been that many of the noblest peach-orchards have died out, and from those that remain a full crop is rarely gathered.

These disasters, for such we may well consider them, have been attributed to various causes. The decay of the larger portion of the peach orchards that have been abandoned, is usually ascribed to the increase of the peach worm, which attacks the inner bark of the roots just below the surface of the ground, and to the prevalence of "the yellows"—a mysterious disease, for which none of the remedies prescribed have ever yet proved effectual. The peach worm may be eradicated. Its presence can easily be detected by the exudation of gum from about the root of the tree that has been attacked. Examine every tree carefully in the spring and fall, and, wherever these signs occur, draw away the earth, and with a sharp pen-knife follow the grub into its burrow, beneath the bark, and destroy it. Some persons use ashes as a protective, and others heap round the tree, in May, half a peck of air slacked lime spreading it in the fall. Both of these preventives are employed to keep the moth from depositing its eggs about the crown of the root, during the semmer months; but an experience of fifteen years in the cultivation of this fruit, warrants us in saying that the only effectual means of preserving the trees is to search out the grub and destroy it. Wherever "the yellows" occurs in an orchard, we have but one piece of advice to offer, and that is—to dig up the tree forthwith and burn it. The disease may, or may not be contagious; but one thing is certain—the tree never recovers its former health and productiveness, and the sooner, therefore, it is removed the better it will be for those that remain.

We believe that the usual system of cultivating the peach is radically wrong, and that, with proper management, the trees may be preserved in vigorous health to the age of twenty-five years, instead of dying out utterly before they are a dozen years old, as is commonly the case. We believe, moreover, that in pointing out what, in our opinion, is the real cause of their early decay, we also indicate the real origin of "the yellows." We preface the statement of our views upon this point with the following analysis:

PEACH —(*Amygdala Perscia.*)—Small seeding peach. Age of the tree, 23 years. Mean diameter, 3½ inches. Thickness of bark, 1·7 inch. Growth, rather slow.—Average thickness of each layer, 0.0699 of an inch.

	Bark of trunk	Wood of trunk	Bark of Root.	Wood of Root.	leaves.	Pits.*	Bark of li'bs†	Wood of li'bs†
Potash	1.20	7.11	3.162	8.58	12.41	18.47	8.85	19.21
Soda		11.15	1.92	15.92	....	5.21	....	8.11
Chloride of sodium	0.04	0.16	0.33	5.60	....	2.70	0.28	0.24
Chloride of Potassium	....	....	....	....	0.36	....	....	....
Sulphuric acid	4.19	1.51	3.44	0.58	12.12	15.12	6.18	8.07
Cabonic acid								
Lime	42.17	23.26	38.48.	0.11	14.77	16.80	31.98	24.64
Magnesia	2.16	6.40	2 91	0.01	8.00	1.33	6.00	9.76
Phosphate perox. iron	0.45	0.32	10.40	1.02	2.47	1 33	1.60	0.60
Phosphate lime	18.79	29.19		18.10	10.44	17.98	8.50	13.20
Phosphate magnesia	0.01	1.34		30.00	3.15	0.02	0.20	0.20
Organic matter	3.30	5.20	3.60	2.55	0.86	6.61	5.00	8.40
Insoluble silica	4.15	1 35	9.40	6.46	6.42	10.00	4.30	1.00
Coal	....	....	1.40	....	4.48	....	1.00	1.20
	109.04	104.97	104.56 2	89.02	86.85	128.77	99.03	104.99

*Analysis made with two grains of ash. †Peach limbs half an inch in diameter.

By the above table, it will be perceived that Carbonate and Phosphate of Lime, Potash, and Soda, constitute at least 60 per cent. of the ashes of the Peach tree, and it necessarily follows, that in any soil in which, by the process of constant cultivation, either of these important constituents happens to be wanting, the tree must fail to preserve its natural vigour.

Now the common impression is, that a fertile soil is by no means essential to the growth of the Peach, and that when the orchard is regularly ploughed and the weeds kept down, there is nothing more required to be done. Herein lies the error into which cultivators have fallen.—They have faithfully ploughed their orchards year after year, but they have neglected to restore the nutritious ingredients to the soil, which are exhausted by turning up fresh surfaces of earth to the sun, throughout successive seasons. No constituents in a soil under cultivation more rapidly disappear than potash and the phosphates. A course of cropping in tobacco proves this beyond a doubt. A similar course of cropping in corn produces a like result. Yet in tobacco and corn, it is customary to restore at least a portion of the removed substances, by introducing a rotation of crops, and very often by laying the land down to clover or grass for a year or two. In a peach orchard this is never done, so far as the cereals or smaller grasses are concerned, for they are known to produce an injurious effect upon the trees. So the land is ploughed year after year, without cropping at all, and the loose soil lies exposed to the action of our burning summer suns, until it becomes literally exhausted of those inorganic substances, without which the trees cannot maintain a vigorous life. This exposure of a loosened soil to sun and rain through a series of years, has drawn off into the atmosphere, or leached out, nearly all its fertilizing properties, and the trees die for want of a due amount of nourishment. What, then, is the remedy? To keep up the original fertility of the soil by frequent applications of those constituents of which it is most easily exhausted. Keep it well supplied with lime, and wood ashes and ground bones, and the orchard will continue to flourish for many years. To work the same land to a profit, and to guard, at the same time, against a bad fruit season, keep it constantly in hoed crops—potatoes, beets, carrots, parsnips, turnips, water melons, cantelopes and cabbages.—All these require heavy dressings of manures, or other fertilizers, to produce them in perfection; and such a manuring, together with the amount of labour they require to keep them free of weeds and wild grasses, will be largely beneficial to the peach trees. As an illustration of the value of these suggestions, we state the following facts, which came strictly within our own knowledge. In the year 1839, a resident of Baltimore purchased a farm a short distance from the city, upon which there was then an orchard of some five hundred peach trees. The soil of the orchard was a gravelly loam. The trees, at that time, had been planted about twelve years; looked badly, and were said, by the neighbouring farmers, to be dying out.—They were, therefore, in the opinion of the new owner, a fair subject for experiment. In the fall of that year, he caused every tree to be well dug round, the earth scooped lightly away from the roots, and in the hollow thus formed, a peck of wood ashes to each tree was applied. They remained thus exposed throughout the winter, which was a severe one. The following spring, the ashes were dug in about the trees; the whole orchard was subjected to a careful pruning; manure was hauled out, and, at the proper season, the intervals between the trees were planted in sugar beets and potatoes. But four trees, and those the sickliest, died. The remainder seemed to take in a new lease of life—the yield of fruit that year was an extraordinary one, and from that time, by following up the same system, all evidences of decay ceased. In the course of subsequent years, some twenty of the trees may have died; but when the person to whom we allude, after occupying the farm for fifteen years, sold it, that peach orchard was still in full bearing, and at least two thirds of the trees were still healthy and vigorous. Those trees were then twenty-seven years old. A few facts like these are worth a thousand theories.

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From the California Farmer.

The Cause and Remedy of the Peach Blight.

The peach blight, or curled leaf, is an affection, or disease of the trees in this State, not generally known in other countries. We are, therefore, left without a well-established theory, showing the cause of the disease or prescribing a remedy or preventive of it. By some the curled leaf is said to be caused by the the sap of the tree becoming chilled in the damp or cold weather, occuring generally in April, after the vigorous growth of the tree has commenced. This theory is undoubtedly correct; it has been asserted by many scientific gentlemen of eminent ability, and I can only add my careful observation to the support of their theory; but no one has suggested a remedy. I propose to supply this defect in our system of pomology by stating what I have done to avoid the peach blight and how my remedy has operated.

About the first of March, I hauled straw from the refuse of an old straw-stack, with which I mulched the trees in a part of my orchard, leaving others of like quality, in like situation, and growing in like soil, without mulching. The result now shows that the trees well protected about the roots are loaded with fruit, and present a very thrifty and healthy appearance; whilst the other trees not so well protected about the roots, have shed both fruit and leaves and present a diseased appearance.

I, therefore, feel fully authorized to recommend to fruit-growers a thorough system of mulching applied to fruit trees in the month of February or the beginning of March of each year.

The straw placed about the roots of the tree protects the soil from the rays of the sun so as to retard very slightly the bloom of the tree and the early growth of the fruit; it also has a tendency to keep up an even temperature in the heat of the soil beneath it, so that the sap, which constitutes the life blood of the tree, is neither chilled or in any way checked in its upward flow during the season. I apprehend the damp cold atmosphere communicates to the earth its chilling properties, and through the earth affects the growth of the tree more thoroughly than the cold winds passing through and among the branches could do. So, if the roots be kept in a proper condition, they will attend to the fruitfulness and thrift of the body and secure a good crop. The excessive chilliness of the atmosphere can do the tree no harm, unless it is freezing cold, but the chilliness affects the earth beneath and causes an unnatural flow of sap, not of the heathful kind. This sap forms the misshapen leaves of short life; when they fall off, the fruit no longer supported by the growing tree, must also fall; thus the fruit for the season is lost, and the growth of the tree much retarded. By following my suggestions the fruit crop will be preserved an an additional growth added to the tree.

J. H. RALSTON.

The Cultivation of Black Currants for Wine in France.

Prof. Decaisne in his recent work, the *Jardin Fruitier*, publishes a communication from Dr. Millard, of Dijon, in regard to the cultivation of Black Currants for the manufacture of liqueur in the Department of the Cote-d'Or.

It appears that the first attempts at preparing Black Currant Liqueur were made in 1841, and since that time the manufacture has so rapidly increased, that at Dijon alone there are now three first-class houses, producing together 88,000 gallons; six second-class ones producing 66,000 gallons, and at least 20 others manufacturing a like quantity. Establishments also exist at Beaune, and other small towns in the same district; producing in all, 880,000 bottles.

"Up to the present time the production of the article in the Cote-d'Or has depended upon the supply of fruit, which has frequently proved unequal to the demand, and has had to be brought from considerable distances. Even in the neighborhood of Lyons, Black Currants are now cultivated for the Dijon market. For the first few years, when the success of the manufacture remained uncertain, the owners of vineyards confined themselves to planting Black Currants here and there among Vines, and by the sides of roads and footpaths, so as not to risk any considerable outlay of capital or loss of ground. But the manufacture is now so well established that landowners are cropping their land with Black Currants alone, the number of plants introduced into Vineyards being also on the increase. The rage, indeed, for planting was so great in 1857 that rooted plants sold as high as $16, and even $24 per thousand. Now, however, price has found its usual level, that of $4 to $6 per thousand. The exact number of plants cultivated round Dijon does not seem to be ascertainable, the proprietors themselves not knowing how many they have planted. It is, however, probable that to estimate the number near Dijon at 1,500,000 would be greatly below rather than above the mark.

"In the Department of the Cote-d'Or, the centre of Currant cultivation exactly coincides with that of the Vine. In fact, it may be said to extend from Chagny to Dijon, in a narrow zone skirting the eastern slope of the mountain chain of the Cote-d'Or, 18 to 25 miles in length, and from one to three miles in breadth. Within these narrow limits are to be found all the growths of Burgundy wine, connected by Vineyards only producing *Vin ordinaire.* It is among these, and in land of a similar nature, that the Black Currant is cultivated. Many of the villages producing large quantities of the latter, are noted for the excellence of their wines, as for example—Volnay, Beaune, Aloxe, Savigny, Premeaux, Nuits, Vongent, Chambollo, Vosne, Morey, Gevrey-Chamberlin, Brochon, Fixin, Marsanny, Talant, Fontaine. Leaving this centre the Currant follows the Vine in the valleys that traverse the mountain range toward the west; there are extensive plantations at Nolay, Pombieres, Malain, Laumes, and Montbard, and others occur occasionally in the large and fertile plain which extends from the foot of the Cote-d'Or chain to the Saone, and in which the Vine is not cultivated. Finally they are to be found in the department of the Saone-et-Loire, particularly in that part of it which adjoins the Cote-d'Or. Rather considerable plantations also occur near Autun and Chalon-sur-Saone.

Contrary to what might have been expected in fruit with so strong a flavor, there exist great differences in the quality of the Currants from different localities. The French liqueur makers easily distinguish them, and carefully reserve Currants of superior quality for first-class liqueur, which sells as high as 66 cents per quart, wholesale. In general, indeed, wherever wine is good the Currant is also good. By this is not meant the choice growths but *vins ordinaires*, the vines producing which are frequently grown along with Currants."

The Currants are planted about 4 feet apart, and the after culture consists in hoeing the ground deeply in the spring, and two or three hoeings during the summer to keep down the weeds. Pruning is done in the spring, at the same time with the Vines. As to soils, chalk or limestone, with a little clay in its composition, such as prevails in French wine districts, suits very well.

In regard to amount of fruit, and the price that can be obtained for it, Dr. Maillard estimates that every bush that has been planted five years, when the land is wholly occupied with the Currants, will yield 3½ lbs. of fruit. The yield on bushes growing singly among the grape vines is much greater. Estimating the average yield at only 2 1-5 lbs. to a bush, and 2,240 bushes on an acre, we have 4,828 lbs. as the produce per acre. The average price of the fruit in former years was, in 1841, 80 cents per cwt.; in 1842 and '43, $1; 1844 and '45, $2; 1856 and '57, $4; 1858 $7.50, and in 1859, from $5 to $7. It appears that some of the most important houses in Dijon have contracted with growers to take all their crops for 10 or 12 years to come at $3 per cwt. This would give $147 per acre as the price of the fruit. The trouble of growing Black Currants is very little, and they make a delicious and healthy wine, far superior to what is usually sold under the name of Port.

Pomology.

We have spoken here, and on former occasions, of the advancement which has been made in pomology in our age and country. This is to be ascribed in part to the great scheme of Providence which has developed such stupendous results in the march of civilization and all the arts of life. Human pursuits are allied by affinities so intimate, that a remarkable discovery or improvement in one advances them all. Never before has the public mind been so profoundly moved, nor the energies of mankind so concentrated upon efforts to relieve toil, to perfect skill, to reward labor, and to multiply the comforts and blessings of life.

Truly we live in an age of transition and wonder! The invention of to-day supersedes that of yesterday, and in its turn is to be supplanted by that of to-morrow. No enterprise, however bold, adventurous, or vast, whether the construction of a railroad from the Atlantic to the Pacific, the laying of the mystic wire in old ocean's bed, or threading it through Behring's Straits and winding it around the globe, is too great for the capital, energy, or intelligence of the present generation.

How wonderful the scale of development in modern society! The old wheel and hand-loom of our mothers have passed away, and given place to the busy hum and clatter of our princely manufactories; the needle of the weary housewife, plied by day and night for clothing her family, has been exchanged for the ingenious sewing machine, turning off its ready-made garments, and performing the labor of months in a day; the old printing-press of our Franklin, working off by the sweat of the brow only a few hundred newspapers per day, has yielded to the steam-press of our time, throwing off its twenty thousand impressions per hour; the brush of the artist patiently filling up his outline, touch by touch, through toilsome days, to the pencils of light in the hand of the king of day, picturing at a flash the image of yourself and of all around you; the coaster, creeping cautiously along the shore, dependent on wind and tide, to thousands of steamboats which now dash over our lakes, rivers, and oceans, despite of current or tempest; the old stage coach, making only fifty miles per day, to our dispatch and lightning trains, running fifty miles per hour; the horse express and carrier-pigeon, hailed as wonders in their time, to the electric telegraph, which, quick as thought, speaks, with a tongue of fire, the languages of earth.

Discoveries, inventions, and improvements equally remarkable, characterize all the arts of husbandry. Witness, in place of the forked stick of the ancients, or the wooden plow of our boyhood, the improved iron plow of every model, and adapted to all kinds of soil and situation; and, still more marvelous, the Steam Plow, moving as a thing of life across the broad prairie, turning up its numerous furrows at once, and leaving behind it a wake like that of a majestic ship. Witness also, instead of the rude hook, the sickle, or the scythe of the farmer, slowly and tediously gathering his crops, our mighty mowing and reaping machine, cutting down its ten to twenty acres per day.

The great industrial pursuit which this Society seeks to promote furnishes testimony of progress not a whit behind the most favored of the arts.

Behold the improved methods of cultivation; the vast number of nurseries and orchards, springing up everywhere, as by enchantment; the novel processes of reproduction, multiplying plants in endless profusion, and as by the stroke of a magician's wand. Witness the interminable ists of varieties now in cultivation, increasing with each revolving year; the restless and anxious desire to obtain everything new and promising from whatever country or sea-girt isle it comes; the refined taste for choice fruits rapidly extending through every gradation of society; the standard of pomology, like the star of empire, rising in the east, moving still onward to the west, and exciting the attention and astonishment of mankind.

But this progress results from no supernatural power. It is rather an illustration of human capability, acting in conformity with natural laws, and in harmony with the benevolent designs of the Great Husbandman for the amelioration of society, and the display of his infinite wisdom and love, "sought out of those who take pleasure therein." It exhibits the conquests of mind over matter, the dominion of mind over nature, improving, adorning, and elevating her to the highest and noblest purposes of her creation.

Inspired with these sentiments, let us take encouragement, and press on in the career of improvement, ever remembering that study and experience make the man; and that, for the highest attainment and the greatest success, we must depend upon the culture of the mind as well as of the soil.

> "Survey the globe through every zone,
> From Lina to Japan,
> In lineaments of light 't is shown
> That Culture makes the man.
> All that man has, had, hopes, can have,
> Past, promised, or possessed,
> Are fruits which Culture gives or gave,
> At industry's behest."

For the N. C. Planter.

The Orchard.—Pruning.

Where fine fruit is a requirement, and e presume this is everywhere, the trees ould be properly pruned to produce the esired effect; especially is this necessary ith the Peach. Thin out all weak shoots, d shorten in the strong leading ones, eping an eye to the shape of the trees that it shall have, when pruned, a well-lanced head. We trust our readers will t fall into the popular error of trimming e trunk up high and clean, as a broom- ck; the foliage of the tree should par- lly shade the trunk, so that the direct s of the sun in summer does not split bark and produce what is termed sun-blight, as this is sure destruction to the tree, if not protected and remedied in time.

In pruning the Peach, cut the weak shoots close to the parent limb; in shortening the strong shoots be careful to cut back to a wood or double-blossom bud, for the reason that all blooms will be abortive where there is not a wood-bud above them. This peculiarity no doubt many of our amateurs have observed. A dressing applied to the trunk of the trees, of soap, sulphur, and tobacco water, will be highly beneficial to them. The manner of applying this has already been explained in a back number of the N. C. Planter. The Peach when pruned annually, is much more thrifty, long-lived, produces larger fruit, and is every way better than when this operation is neglected.

Currant Bushes—Should be spurred in and the leaders shortened back. Cuttings may also be now planted.

Gooseberries.—These should also be pruned. All that is necessary is to thin out the weak shoots and see the head is well balanced. A moist, shady situation is best for them.

Raspberries.—Thin out all weak canes when the plants are very strong, four canes may be left; when this is not the case three and sometimes two will be enough.

Grape Vines.—Should now be pruned. Oftentimes this is delayed too long in the spring; the vines bleed and the crop materially suffers. Aside from this reason, there is more spare time now, than in the spring. The borders can all be mulched and everything put in good trim now, so as not to interfere with the spring work. A dressing, as recommended for the Peach, will also be beneficial to them. Cuttings and buds should be taken, labelled, and placed in a cool place, free from frost, till February when they may be planted.

W. H. HAMILTON.

Renovation of Old Apple Trees.

First thin out all weak shoots and cut the head of the tree back within six feet of the trunk, smoothing the places over with a sharp knife, where the saw has been used; then scrape off the moss from the trunk and limbs remaining—after give it a good dressing of soap, sulphur and tobacco water, the manner of making and putting on of which has already been made known in the North Carolina Planter. After this is done, take out a trench four feet wide and three feet deep, cutting all the roots in the way smoothly—fill up the trench, (which should be cut all around the tree) at six feet from the trunk to the nearest edge of the trench with rich compost; a small quantity of lime mixed with it, will be highly beneficial. This is the best, quickest and surest way of renovating old trees. As many persons have favorite old trees, we offer them this practical way of preserving them.

Transplanting, if not completed, should be pushed forward rapidly whenever the state of the ground will permit. We again urge our readers who plant to profit, to plant a few kinds, and they the best, and especially those kinds which suit their section best.

W. H. HAMILTON.

For the Ladies.

Greenhouse.

Admit air freely in fine weather; attend carefully to watering; syringe freely in the morning in fine weather such plants as are in a growing state; give them plenty of room. In the event of Green Fly making its appearance, fumegate thoroughly and syringe the plants well the following morning. Be careful the bedding out plants are not neglected.

Hyacinths and the bulbous plants in pots, should be kept ready to fill all vacancies in the Greenhouse. A good succession of blooming plants is absolutely necessary at this season.

◆

Flower Garden.

Nothing can be done here except where the borders have not been spaded up, and no time should be lost in attending to it. If any change in the shape of flower-beds or walks is contemplated, it should be decided on before our work is done in the way of cleaning up for the winter.

W. H. HAMILTON.

Culinary Department.

Celery.—Keep as dry as possible. If it has never been worked where the leaves were wet, it will keep well. All work that can be done in the way of spading up the different squares, should not be overlooked, as all ground spaded up now will be in better condition to receive seed in the after exposure to the frosts of winter.

W. H. HAMILTON.

◆

Ayer's American Almanac for 1861 is now ready for delivery gratis at Williams & Haywoods, who are happy to supply all that call for them. Every family should have and keep this book. It is worth having. Compasing much general information of great value; it gives the best instruction for the cure of prevalent complaints, that we can get anywhere. Its anecdotes alone are worth a bushel of wheat, and its medical advice is sometimes worth to the sick, the wheat's weight in gold. Many of the medical almanacs are trash but this is solid metal. Its calculations are made purposely for this latitude and therefore correct. Call and get an Ayer's Almanac, and when got, keep it.

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WE WOULD CALL THE ATTENTION OF Guano Dealers, Planters and Farmers to ie article which we have on hand and for sale at

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ctober, 1859. 10—3m.

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ORTH CAROLINA ALMANAC!

FOR THE YEAR OF OUR LORD

1861.

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leigh, Oct. 31, 1860. 10—tf

The Spirit of the Age,

ARGE WEEKLY FAMILY NEWSPAPER

PUBLISHED IN RALEIGH, N. C.,

BY A. M. GORMAN,

DITOR AND PROPRIETOR,

---

eCARTERET & ARMSTRONG,

BOOK BINDERS,

—AND—

ANK BOOK MANUFACTURERS.

RALEIGH, N. C.

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Made Agricultural Implements

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WE notice that Messrs. R SINCLAIR, JR. & Co. of this city, received FIRST PREMIUMS for their deservedly famed Agricultural Implements at the recent Agricultural exhibitions and Fairs held in Maryland, Virginia, N. Carolina, and the Southwestern states, namely;

*By the Maryland State Agricultural Society,*14 *Premiums, By the Virginia & N. Carolina agricultural society,* 9 *Premiums, By the Seaboard Agricultural society, held at Norfolk, Twelve Premiums.*

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☞ The Agricultural Implements and Machinery manufactured by us are constructed in the most substantial and durable manner, great capacity, and particularly adapted for Southern use and usage. Planters or Merchants wanting supplies will be furnished with Price Lists on application.

R. SINCLAIR, Jr. & Co.,
Manufacturers, Baltimore, MD.

April, 1860. 4—6m.

Ayer's Sarsaparilla.

A compound remedy, in which we have labored to produce the most effectual alterative that can be made. It is a concentrated extract of Para Sarsaparilla, so combined with other substances of still greater alterative power as to afford an effective antidote for the diseases Sarsaparilla is reputed te cure. It is believed that such a remedy is wanted by those who suffer from Strumous complaints, and that one which will accomplish their cure must prove of immense service to this large class of our afflicted fellow-citizens. How completely this compound will do it has been proven by experiment on many of the worst cases te be found of the following complaints .

Scrofula and Scrofulous Complaints, Eruptions and Eruptive Diseases, Ulcers, Pimples, Blotches, Tumors, Salt Rheum, Scald Head, Syphillis and Syphilitic Affections, Mercurial Disease, Dropsy, Neurolgia or Tic-Doulouruex, Debility, Dyspepsia and Indigestion, Erysipelas, Rose or St. Anthony's Fire, and indeed the whole class of complaints arising from Impurity of the Blood.

This compound will be found a great promoter of health, when taken in the spring, to expel the foul humors which fester in blood at that season of the year. By the timely expulsion of them many rankling disorders are nipped in the bud.—Multitudes can, by the aid of this remedy, spare themselves from the endurance of foul cruptions and eruptions and ulcerous sores, through which the system will strive to rid itself of corruptions, if not assisted to do this through the natural channels of the body by an alterativemedicine. Cleanse out the vitiated blood whenever you find its impurities bursting through the skin in pimples, cruptions, or sores; cleanse it when you find it is obstructed and sluggish in the veins; cleanse it whenever it is foul, and your feelings will tell you when. Even where no particular disorder is felt, people enjoy better health, and live longer, for cleansing the blood. Keep the blood healthy, and all is well; but with this pabulum of life disordered, there can be no lasting health. Sooner er later something must go wrong, and the great machinery of life is disordered or overthrown.

Sarsaparilla has, and deserves much, the reputation of accomplishing these ends. But the world has been egregiously deceived by preparations of it, partly because the drug alone has not all the virtue that is claimed for it, but more because many preparations, pretending to be concentrated extracts of it, contain but little of the virtuo of Sarsaparilla or any thing else.

During late years the public have been misled by large bottles, pretending to give a quart of Extract of Sarsaparilla for one dollar. Most of these have been frauds upon the sick, for they not only contain little, if any, Sarsaparilla, but often no curative properties whatever. Hence, bitter and painful disappointment has followed the use of the various extracts of Sarsaparilla which flood the market, until the name itself is justly despised, and has become synonymous with imposition and cheat. Still we call this Compound Sarsaparilla, and intend to supply such a remedy as shall rescue the name from the load of obloquy which rests upon it. And we think we havo ground for believing it has virtues which are irresistable by the ordinary run of the diseases it is intended to cure. In order to secure their complete eradication from the system, the remedy should be judiciously taken according to directions on the bottle.

PREPARED BY

DR. J. C. AYER & CO.,

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has won for itself such a renown for the cure (every variety of Throat and Lung Complaint, tha it is entirely unnecessary for us to recount the ev dence of its virtues, wherever it has been employe As it has long been in constant use through thi section, we need not do more than assure the pe ple its quality is kept up to the best it ever ha been, and that it may be relied on to do for thei relief all it has ever been found to do.

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FOR THE CURE OF

Costiveness, Jaundice, Dyspepsia Indigestio Dysentery, Foul Stomach, Erysipelas, Headach Piles, Rheumatism, Eruptions and Skin Disease Liver Complaint, Dropsy, Tetter, Tumors and Sa Rheum, Worms, Gout, Neuralgia, as a Dinner Pil and for Purifying the Blood.

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April 2, 1860. 4—3